Appendix B

Boring and Test Pit Logs

Northwest Boundary Area RCRA Facility Investigation Fort Buchanan, Puerto Rico



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-01 Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 12/1/2006 12/4/2006 Depth of Hole (ft): 32.00 Date Completed: UTM NAD83 Elevation (ft): 33.23 Northing (m): 867063.26 Easting (m):760469.08 Gauged Depth to Water (ft): 17.73 Conditions: Asphalt Perimeter Road Comments: Screening Sample Interval USCS Recovery Depth Depth Remarks/Sample Name **Description of Materials** VOC Log (ft) (%) (ft) (ppm) 0 0-433 FILL-GP: Dark bluish gray (Gley 2, 4/1) med-coarse GRAVEL; some dark brown coarse sand; wet CL: Dark yellowish brown (10 YR 4/4) to dark brown (10 YR 3/3) CLAY; some silt, little organics, trace white coarse -2 sand/fine gravel; very moist. -3 -4 CL: Yellowish red/reddish brown (5 YR 4/6, 4/4) and gray (10 YR 6/1) CLAY; slightly stiff, very high plasticity; trace yellowish brown (10 YR 5/6) coarse sand; dry. 4-8 62 SB-03-06-01-4-8 -5 -6 -7 -8 8-12 20 CL: Reddish brown/gray CLAY; some fine gravel and yellowish brown coarse sand; very wet (low recovery). -9 - -10 - -11 -12 12-16 CL: Reddish brown/gray CLAY; highly plastic; dry. SM: Gray/light bluish gray (Gley 2 7/1) and yellowish brown fine - -13 SAND and SILT; slightly moist. SM: Brownish yellow (10 YR 6/8) and very pale brown (10 YR -14 7/3) fine SAND; little silt; slightly moist. ML: Greenish gray (Gley 1 6/1) and brownish yellow SILT; little clay, trace fine sand, slightly moist. - -15 - -16 16-20 88 ML: Brownish yellow SILT; trace clay. OL: Reddish brown/brownish yellow/light brownish gray (10 YR -17 6/2) SILT; little black remnant organic material; trace clay. -18 CL: Dark yellowish brown (10 YR 4/6) and pale brown (10 YR 6/3) CLAY; little black silt (organics); medium plasticity, stiff, -19 -20 20-24 SB-03-06-01-20-24 67 GP: Very pale brown medium GRAVEL and coarse SAND; some Ø silt; little clay (carbonates); moist. -21 -22 SM: Pale brown (10 YR 6/3), some brownish yellow fine SAND; -23 ML: Pale brown/brownish yellow SILT; trace fine sand.



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Log of Boring: MW-01

105	Log of Bornig. 14144-01										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name				
			ML: Light greenish gray (Gley 1 7/1) some brownish yellow SILT; trace coarse sand/fine gravel. Slightly moist. ML: Brownish yellow to light greenish gray SILT; trace fine sand; moist. ML: Light greenish gray/pale brown SILT; some coarse sand, trace clay, wet.		24-28	63					



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-02 Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 12/6/2006 12/7/2006 Depth of Hole (ft): 40.00 Date Completed: UTM NAD83 Elevation (ft): 61.05 Northing (m): 866516.94 Easting (m):760773.70 Depth to Water (ft): 19.55 Conditions: Comments: Screening Sample Interval USCS Recovery Depth Depth Remarks/Sample Name **Description of Materials** VOC Log (ft) (%) (ft) (ppm) 0 41.7 0-4GP: Pale red (10R 7/3) coarse GRAVEL; moist. CL: Red (10R 4/6) and bluish gray (Gley 2 6/6) CLAY; high plasticity; little silt; dry. - -2 -3 -4 62.5 4-8 SB-03-06-02-4-8 CL: Red and bluish gray CLAY; highly plastic, trace silt and fine -5 -6 -7 -8 8-12 100 CL: Red/bluish gray CLAY; little silt; some plasticity. Dry. -9 CL: Yellowish brown/red/bluish gray CLAY and SILT; dry. CL: Yellowish brown (10 YR 5/8), some light gray (10 YR 7/2) CLAY and SILT; little black organics; trace fine sand, dry. - -10 - -11 - -12 12-16 91.7 SM: Very pale brown (10 YR 7/4) to brownish yellow/light gray fine SAND and SILT; more sandy at depth. Mostly dry. - -13 -14 ML: Brownish yellow/black SILT; trace fine sand and clay. - -15 - -16 16-19 100 ML: Grayish brown (10 YR 5/2), yellowish brown, black SILT and CLAY; low plasticity, dry. - -17 GM: Very pale brown (10 YR 7/4, 7/3) SILT; fine medium GRAVEL, and coarse SAND; dry. BEGIN CARBONATE ZONE . . ⊠ ... -18 . . ⊠ . . Ø . . ⊠ . . ⊠ - -19 ⊠ ∴ ⊠ - **-**20 20-22 100 GM: Very pale brown (little yellowish brown, light gray) medium GRAVEL, coarse SAND, and SILT; slightly moist to very moist. . . Ø - -21 ☒ -22 . . ⊠ ⊠ ⊠ -23 ...



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-02

_	USCS			Screening		_	
Depth (ft)	USCS Log	Samp Inter	Description of Materials	VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
24 25			GM: Very pale brown (10 YR 8/2, 7/3) SILT and medium to coarse GRAVEL; dry.		24-24.9	100	END CARBONATE ZONE
- 26			GM: Very pale brown fine to medium GRAVEL and SILT; slightly moist at depth.		26-27.67	100	SB-03-06-02-26-28
27 			SM: Light gray fine SAND; some silt, moist.				
28 29			SM: Brownish yellow (10 YR 6/6) fine SAND and SILT; slightly moist.		28-31.67	100	
-30			OL: Brown (10 YR 5/3) to dark bluish gray (Gley 2 4/1) SILT; high amount of shells in bluish gray material; little fine gravel; trace clay. Dry.				
31 -							
32 33			OL: Dark bluish gray SILT; carbonate fragments. Dry. GM: Greenish gray (Gley 2 6/1) and very pale brown fine to medium GRAVEL and SILT (carbonates); moist.		32-33.67	100	CARBONATES
- 34							
- 35		-	SP: Very pale brown fine to medium SAND; some fine to medium gravel, little silt near bottom of interval. Wet.		35-37	100	
36 - 37							
38		-	SP: Very pale brown/reddish brown fine SAND; little medium		38-39.67	100	
39		,	gravel, trace silt. Wet. SM: Light greenish gray fine SAND and SILT; moist. ML: Dark bluish gray SILT; trace clay; stiff, mostly dry.				



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: SB-3 Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/20/2006 10/24/2006 Depth of Hole (ft): 90.00 Boring/Well:BOREHOLE Date Completed: UTM NAD83 Elevation (ft): 36.87 Northing (m): 867219.90 Easting (m): 760997.56 Depth to Water (ft):N/A Conditions: Asphalt between light poles 053/054 Comments: Screening Sample Interval # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 0-450 GP: Very dark gray, round GRAVEL and coarse SAND 6/6 CL: Reddish brown (5 YR 4/4) CLAY; little white clay, trace silt. - -2 7/12 -3 10/12 -4 4-8 CL: Strong brown (7.5 YR 5/6, 5/8) CLAY; little silt, little fine 50 16/12 SB-03-06-03-4-8 gravel, trace sand; striations of black clay/silt. Stiff. -5 7/12 -6 7/12 -7 18/12 -8 8-12 79 31/12 CL: Pinkish white (5 YR 8/2) CLAY with regular intervals of reddish brown (5 YR 4/4) SILT and fine GRAVEL; very stiff. -9 19/12 - -10 29/12 - -11 38/12 - -12 12-16 73 39/12 CL: Pinkish white (2.5 YR 8/2) and red (2.5 YR 4/6) CLAY; trace silt. Very stiff, dry. - -13 11/12 - -14 18/12 - -15 23/12 - -16 16-20 100 28/12 CL: Strong brown (7.5 YR 5/6) with black mottles CLAY; trace silt. Very stiff, dry. - -17 9/12 -18 18/12 - **-**19 23/12 - -20 20-24 100 30/12 SB-03-06-03-20-22 CL: Strong brown (7.5 YR 5/1) CLAY; stiff. - -21 4/12 GM: Very pale brown (10 YR 8/2) SILT and fine GRAVEL; trace fine sand, slightly moist. -22 32/12 . . Ø -23 46/12 SP: Brownish yellow (10 YR 5/6) fine SAND; trace silt, moist.



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Log of	<u>Bori</u>	<u>1g:</u> S	SB-3					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
- -24	• • •		SP: Brownish yellow fine SAND; moist.	i	24-26.75	91	55/12	1
- 25			ML: Pale yellow (2.5 Y 7/3) and brownish yellow SILT; some clay; slightly stiff; trace fine gravel and sand. Slightly moist.		2. 20.75	,,	19/12	
26							27/12	
27 -							100/9	
28 -			GM: Very pale brown (10 YR 8/4) to yellow (10 YR 7/6) medium to coarse GRAVEL; some silt, tapering to stiff CLAY		28-32	79		
29			and GRAVEL; some silt, little medium sand. Moist.				63/12	
30 - 31							46/12	
32			CO D. I (IAVDO) OTAY . I I'		32-33.67	100	39/12 45/12	
- 33			GC: Pale brown (10 YR 8/4) CLAY and medium to coarse GRAVEL; trace medium sand. Very moist. GM: Pale brown medium to coarse GRAVEL; some medium		32-33.07	100	43/12	
-34			sand, little clay; very moist.				100/8	
35 -								
36 -			CL: Very pale brown (10 YR 8/3) CLAY and fine to medium GRAVEL; little medium sand, very moist.		36-36.67	100		
37 -							100/8	
38 - 39			SM: Brownish yellow (10 YR 6/6) and light gray (10 YR 7/1) medium SAND and SILT; little clay, trace fine gravel. Very moist.		38-38.5	100		
40					40-43.5	100	100/6	
- 41			GP: Very pale brown medium angular GRAVEL and medium SAND; wet. SM: Yellowish brown fine SAND and SILT; moist.		40-43.3	100	38/12	
42			ML: Dark bluish gray (Gley 2 4/1) and yellowish brown SILT; trace clay. Slightly moist.				33/12	
43			OL: Dark bluish gray SILT; some small gravel and shells. Trace clay, very stiff. Dry.				58/12	
44 -			GP: Dark bluish gray shells (medium GRAVEL); wet.		44-44.5	100	100/5	
45 - - 46							100/6	
46 - 47			SM: Greenish gray (Gley 2 6/1, 5/1) fine SAND; little clay, trace silt. Wet. SM: Greenish gray fine SAND and SILT; trace clay, trace		46-47.75	100	74/12	
- 48			medium gravel. Very moist.				74/12 100/9	
- 49							100,7	
50			GC: Greenish gray medium GRAVEL; some silt and medium		50-50.5	100		
51 -			sand; little clay. Stiff, moist.				100/5	
52 -			SM: Greenish gray fine SAND; some silt, some clay, trace fine gravel, moist.		52-52.8	100		
⊢ -53						l		



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Log of	<u>Borir</u>	<u>1g:</u> S	SB-3					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
- 54 - 55			GP: Greenish gray medium SAND and fine GRAVEL; trace clay and silt. Wet.		54-54-6	100	100/10	
56 57			ML: Greenish gray SILT; some fine sand, trace fine to medium gravel. Moist, stiff.		56-57.2	100	100/7	
58 59							100/12	
60 - 61			ML: Light greenish gray (Gley 2, 7/1) SILT; little clay, trace medium sand, fine gravel.		60-60.5	100	100/5	
62 -			OL: Light greenish gray SILT; little white fragments (carbonates). Very stiff.		62-62.5	100		
63 64			ML: Light greenish gray SILT; very stiff.		64-65	100	100/6	
- 65 -		•	ML: Dark greenish gray SILT; some fine to medium gravel, trace clay, very stiff.				100/12	
66 67			ML: Dark greenish gray SILT; trace fine gravel.		66-66.5	100	100/6	
68			GM: Dark greenish gray SILT and medium GRAVEL; trace fine sand.		68-69.25	100	100/0	
69 70			ML: Dark greenish gray SILT; little fine sand.				27/6 100/6	
71			ML: Very dark greenish gray (10 YR 3/1) SILT; some medium gravel at depth. CL: Dark greenish gray CLAY; some silt, trace fine sand.		70-70.8	100	86/6	
- 72 -			ML: Dark greenish gray SILT; little fine sand, trace gravel.		72-73.67	100	100/4	
73 74			GM: Dark greenish gray SILT, medium SAND, and medium GRAVEL: moist.		74-74.67	100	46/6 52/6 85/6 100/6	
75 - 76			SM: Dark greenish gray SILT and fine to medium SAND; moist.		76-77	100	100/8	
- 77			5.11. Dark greenish gray SIL1 and thie to medium SAND; moist.				50/6 100/6	
78 - 79			SM: Dark greenish gray fine to medium SAND; some silt; very moist.		78-78.75	0.5	28/6	
- 80 -			ML: Dark greenish gray (Gley 2 4/1) SILT; trace clay and medium gravel; stiff. Moist.		80-80.9	100	100/3	
81 82					00.00	100	69/6 100/5	
- 52			OL: Dark greenish gray SILT, trace clay, stiff. Evidence of		82-82.67	100		



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Donth	USCS Log	ple	Description of Materials	Screening	Depth	Recovery	# Blows	Remarks/Sample Name		
Depth	Log	am	Description of Waterials	VOC	(ft)	(%)	per	Kemarks/Sample Pame		
(ft)		21		(ppm)	(11)	(/0)	# Inches			
-83			calcium carbonates; slightly moist.				100/6			
-										
-84		ŀ	OL: Dark greenish gray SILT and CLAY; high amount of shell		84-85	100				
† <u></u>			fragments (carbonates); very stiff, mostly dry.							
85	1 1 1 1						38/6			
00							100/6			
 86			OL: Dark greenish gray SILT; some clay, trace fine gravel, trace		86-87.25	100				
87	11111		carbonates. Very stiff, dry.							
-67							54/6			
-88							47/6			
- 00			OL: Dark greenish gray SILT; some fine gravel. Dry.		88-88.5	100	100/3			
89							100/5			
-							100/5			
90		-								
-										
└91										



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-03A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/27/2006 10/27/2006 Depth of Hole (ft): 33.00 Boring/Well:MONITORING WELL Date Completed: Elevation (ft): 36.49 UTM NAD83 Northing (m): 867224.75 Easting (m):761011.49 Depth to Water (ft): 26.80 Conditions: Asphalt between light poles 054/055 Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) **⊢**0 - -1 - **-**2 - -3 - -4 - -5 - **-**6 - -7 - -8 - **-**9 --10 -11 -- -12 - -13 **-- -14** - -15 - -16 - -17 **-- -18** - -19 - **-**20 - -21 -22 - -23 - -24 24-28 21 SM: Very pale brown (10 YR 7/3) fine SAND; little silt. Moist. - **-**25 ML: Brownish yellow (10 YR 6/6) SILT; little clay. Low stiffness, moist. - -26 - -27 - **-**28 - -29 GM: Very pale brown to light gray (10 YR 7/2) fine to medium GRAVEL; some coarse sand and silt, trace clay. Calcium carbonates. Wet to moist, very stiff at bottom. 100 29-33 . . ⊠ **-- -30** . . ⊠ . . ⊠ - -31 . . ⊠ . . ⊠ - -32 . . . ⊠ ⊠ **--33**

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FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-03B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/25/2006 10/26/2006 Depth of Hole (ft): 55.00 Boring/Well:MONITORING WELL Date Completed: Elevation (ft): 36.22 UTM NAD83 Northing (m): 867219.90 Easting (m):760997.56 Depth to Water (ft): 14.65 Conditions: Asphalt between light poles 053/054 Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name **Description of Materials** VOC Log (ft) (%) (ft) (ppm) **⊢**0 **--** -1 - -2 **– -**3 - -4 **--**5 **- -**6 - -7 - -8 **--9** -10 -11 **-- -12 --** -13 -14 **--** -15 **-- 16 --** -17 - -18 - -19 - -20 **-- -21** -22 -- -23 - -24 - -25 **-- -26** - -27 - -28 **-- -29** -30 **- -31 -- -32 -- -33**

-34



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-03B

- 6	og of Boring: MW-U3B									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name			
35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56			GM: Greenish gray (Gley 2 5/1) medium GRAVEL; some coarse sand and silt; white carbonates. Moist. GP: Light greenish gray (Gley 2 7/1) medium to coarse GRAVEL and coarse SAND; trace/little silt. Wet. SM: Greenish gray fine SAND; some silt. Very moist. GM: Light greenish gray medium to coarse GRAVEL; some sand and silt. GW: Light greenish gray coarse GRAVEL; wet. ML: Dark greenish gray (Gley 2 4/1) SILT; some coarse sand and fine gravel; calcium carbonates. Moist. GM: Greenish gray fine to medium GRAVEL: some silt; trace medium sand. Moist. GM: Greenish gray medium SAND and fine GRAVEL; some silt calcium carbonates. Moist. GM: Greenish gray SILT; some fine to medium gravel, little medium sand. Stiff, moist.		45-45.67 47-48.33 49-49.5 51-52 53-54					



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-04A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 11/30/2006 Boring/Well:MONITORING WELL 11/30/2006 Depth of Hole (ft): 41.00 Date Completed: UTM NAD83 Elevation (ft): 42.00 Northing (m): 867307.44 Easting (m):761301.34 Depth to Water (ft): 32.14 Conditions: Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) F₀ -1 -- -2 **--**3 - -4 - -5 - **-**6 -7 - **-**8 - -9 - -10 -11 -12 -13 -14 <u></u>-15 F-16 -17 -18 -19 -20 -- -21 - -22 -- -23 **-- -24** - -25 - **-**26 -27 -28 -29 -30 - -31 31-34 100 SM: Light greenish gray (Gley 1 7/1), light gray (10 YR 7/2) and brownish yellow (10 YR 6/8) very fine SAND and SILT; slightly - -32 - **-**33 ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/6) - -34 SILT; little clay; little white gravel, more at depth. Very stiff. -- -35 Mostly dry 35-38.5 88 . . . ⊠ --- -36 GM: Pale brown (10 YR 6/3) to very pale brown (10 YR 8/2) medium to coarse GRAVEL, SILT, and medium SAND; trace - -37 × clay, moist to wet. -38 GP: Brownish yellow (10 YR 6/6) coarse GRAVEL; little medium sand. Wet. -39 92 39-41 -40 GP: Very pale brown (10 YR 7/4) to yellow (10 YR 7/6) coarse SAND and medium GRAVEL; little silty clay. Wet. -41 L₋₄₂ GM: Pale brown fine to medium GRAVEL and SILT; little

coarse sand, trace clay. Fairly stiff, moist.



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-04B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 11/13/2006 11/30/2006 Date Completed: Depth of Hole (ft): 69.00 UTM NAD83 Elevation (ft): 41.88 Northing (m): 867304.94 Easting (m):761290.88 Depth to Water (ft): 18.71 Conditions: Asphalt between light poles 054/055 Comments: Screening Sample Interval USCS Recovery Depth Depth Remarks/Sample Name Description of Materials VOC Log (ft) (%) (ft) (ppm) 0 0-460 CL: Dark yellowish brown (10 YR 4/4) with reddish blue mottled CLAY; trace fine gravel. - -2 -3 -4 CL: Dark yellowish brown CLAY with red, blue, and green 35 4-8 62.5 SB-03-06-04-4-8 striations/mottles; trace wood fragments and silt. Strong gasoline odor, especially in greenish-blue silty material. -5 157 -6 150 -7 200 -8 8-12 88 CL: Dark yellowish brown/greenish gray (Gley 2 6/1) CLAY; mottled with reds, dark browns; trace reddish silt; trace fine -9 gravel. - -10 - -11 - -12 12-16 CH: Dark yellowish brown mottled CLAY; highly plastic, with reds, blues, greenish-grays; trace fine gravel. - -13 SC-SM: Yellowish red (5 YR 4/6), brownish yellow (10 YR 6/6), and white CLAY and SAND; more sand at depth; little silt. Stiff, -14 cement-like. - -15 - -16 16-20 CL: Yellowish red to strong brown (7.5 YR 5/6) CLAY; some silt; trace fine white sand. Very stiff, low plasticity, dry. 96 - -17 -18 - **-**19 -20 100 20 - 24ML: Yellowish red (5 YR 4/6) SILT; some clay, trace fine sand. - -21 -22 CL: Yellowish brown (10 YR 5/8) and white CLAY with some yellowish red silt; stiff, medium plasticity. -23



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-04B

Log of	Borii	ng: N	MW-04B				
Depth	USCS Log	nple	Description of Materials	Screening	Depth	Recovery	Domonico/Commita Name
(ft)	Log	San Inte	Description of Materials	VOC (ppm)	(ft)	(%)	Remarks/Sample Name
-24			ML: Yellowish brown/yellowish red (5 YR 5/8) SILT and CLAY;		24-28	100	
- 25			very stiff, trace fine sand.				
26			ML: Yellowish red SILT; some fine sand; some yellowish brown silt and sand.				
27 -			CL: Yellowish brown CLAY; some yellowish red clay; trace black organics (silt); stiff, medium plasticity.				
28 29			CL: Yellowish brown (10 YR 5/8) CLAY; some silt; little fine white sand; little black silty clay. Stiff.		28-32	100	
30			ML: Very pale brown/yellowish brown SILT; some clay, little fine gravel.				
31 -			SP: Light gray (10 YR 7/2) fine SAND; some yellowish brown sand, trace silt. Slightly moist.				
32 33			SM: Light gray, some yellowish brown fine SAND and SILT. ML: Light gray/yellowish brown SILT; little clay, trace fine white gravel.		32-35.5	100	SB-03-06-04-32-36
-34							
35 -			GM: Light gray/white SILT and GRAVEL; slightly moist.				
36 -			GM: Very pale brown (10 YR 7/3, 7/4) medium GRAVEL and coarse SAND; little silt; trace clay increasing to some silt/clay at		36-37.67	100	
37 -			depth. Very moist/wet.				
38 -							
39 -							
40 -			GM: Very pale brown (10 YR 7/3) medium GRAVEL; some silt, little coarse sand. Very moist.		40-43	100	
41 -			ML: Very pale brown/yellowish brown to greenish gray (Gley 1 6/1) SILT; little fine gravel; trace clay. Very stiff, slightly moist.				
42							
43							
44 - 45			ML: Pale green/grayish green (Gley 1 6/2, 5/2) SILT; trace clay; stiff. Dry.		44-46.5	100	
45 			ML: Pale green/grayish green SILT; little fine gravel. Dry.				
- 47							
- 48			OM V		48-48.75	100	
- 49			GM: Very pale brown (10 YR 8/2) medium GRAVEL; some coarse sand; little silt. Wet.		40-48./3	100	
- 50			GM: Light brownish gray (10 YR 6/2) fine GRAVEL and		50-50.5	100	
- 51			medium SAND; little silt. Wet.				
52 53			OL: Greenish gray (Gley 2 5/1) SILT; some shells, trace clay; stiff, dry.		52-53.6	100	



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-04B

208 01		<u> </u>	111 010				
Depth	USCS Log	ample terval	Description of Materials	Screening VOC	Depth	Recovery	Remarks/Sample Name
(ft)		Σ.I		(ppm)	(ft)	(%)	1
<u> </u>					 		
54			GM: Coarse greenish gray GRAVEL; some silt. Very moist.		54-54.5	100	
·	1 1 1 1		OL: Greenish gray SILT; trace white shells and clay. Slightly				
- -55			moist.				
-56							
- 00		ŀ	GM: Light greenish gray fine to medium GRAVEL; some coarse sand; little silt; very moist.		56-56.8	100	
-57			ML: Bluish gray (Gley 2 5/1) SILT; some fine sand, very moist.				
+							
-58		•	SM: Dark greenish gray (Gley 2 4/1) fine SAND; little silt. Wet.		58.8	100	
59		İ	GP: Dark greenish gray medium GRAVEL; little fine sand, trace				
33			silt. Wet.				
60		•			60-60.5	100	
+		1	GM: Dark greenish gray (Gley 2 4/1) fine to medium GRAVEL and SILT; little fine sand; moist.		00-00.3	100	
61			GM: Bluish gray (Gley 2 6/1) fine to medium GRAVEL; some				
62			silt, little fine sand. Slightly moist.				
F -02			GM: Greenish gray (Gley 2 5/1) fine GRAVEL, medium SAND,		62-62.8	100	
63			and SILT. Moist.				
+							
-64	<u>⊠</u> ¤		GP: Light greenish gray (Gley 2 7/1) coarse GRAVEL; trace		64-64.5	100	
05			coarse sand and silt. Slightly moist.				
-65							
66	⊠.∵.⊠					100	
-			ML: Light greenish gray SILT; some fine gravel, little coarse sand, slightly moist.		66-66.67	100	
67							
1 00							
68			ML: Light greenish gray SILT; some medium to coarse gravel,		68-68.67	100	
-69			trace medium sand, clay. Slightly moist.				
L ₋₇₀			l				



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-05A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 11/10/2006 11/10/2006 Boring/Well:MONITORING WELL Date Completed: Depth of Hole (ft): 40.00 UTM NAD83 Elevation (ft): 38.10 Northing (m): 867702.22 Easting (m):761461.54 Depth to Water (ft): 32.47 Conditions: Asphalt between light poles 057/058 Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) L₀ -1 -- -2 - **-**3 - -4 - -5 - **-**6 -7 - **-**8 - -9 └ -10 -11 -12 -13 -14 <u></u>-15 F-16 -17 -18 -19 -20 **-- -21** _ -- -22 - -23 - -24 - -25 - -26 -27 -28 -29 - -30 GM: Light gray (10 YR 7/2) and very pale brown (10 YR 7/4) medium GRAVEL; some medium to coarse sand; some silt, little 30-32.2 100 ⊠ . . ⊠ - -31 - -32 clay. Dry. - **-**33 - -34 34-38 54 GP: Very pale brown medium GRAVEL; some coarse sand; little silt, little yellowish brown (10 YR 5/8) silt; trace clay. Wet. - -35 ⊠ . --- -36 -37 -38 ...⊠ GP: Very pale brown, yellowish brown medium to coarse angular GRAVEL; some coarse sand; little silt. Wet. 50 38-40 -39

END OF SAMPLING

|- -40

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FORT BUCHANAN **PUERTO RICO**

Geologist: BILL HARVEY Log of Boring: MW-05B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 11/7/2006 11/9/2006 Depth of Hole (ft): 70.00 Date Completed: UTM NAD83 Elevation (ft): 37.85 Northing (m): 867716.60 Easting (m):761458.35 Depth to Water (ft): 23.35 Conditions: Asphalt between light poles 57/58 Comments: Screening Sample Interval USCS Recovery Depth Depth Remarks/Sample Name **Description of Materials** VOC Log (ft) (%) (ft) (ppm) - 0 0-454 CL-ML: Dark yellowish brown (10 YR 4/4) CLAY and SILT, - -1 stiff; trace gravel. Slightly moist ML: Yellowish brown (10 YR 5/8) SILT; little clay, little reddish -2 -3 -4 4-8 89.6 SB-03-06-05-4-8 ML: Strong brown (7.5 YR 5/8) mottled with reddish brown (5 YR 4/4), pinkish gray (5 YR 7/1) SILT; some clay; very stiff, 06-NO-08-DP -5 -6 -8 ML: Alternating, some mottling, of reddish brown, yellowish brown, and white (10 YR 8/1) SILT; some clay (mostly 8-12 83 white-colored material). Very stiff, dry. -9 - -10 -11 -12 12-16 100 CL-ML: Strong brown SILT and CLAY to white CLAY to reddish brown SILT; very stiff, dry. -13 OL: Yellowish brown SILT and CLAY; little black organics, trace gravel. Very stiff, dry. - -14 CL-ML: White CLAY with interbedded reddish brown SILT; -15 - -16 16-20 100 CL: Mottled/striated yellowish brown/reddish brown/white CLAY; little silt. Stiff, dry. -17 OL: Yellowish brown SILT and CLAY; little black remnant organics; trace fine sand, stiff, dry -18 - -19 OL: Yellowish brown SILT; some clay; little fine sand; trace black remnant organics. Dry. -20 20-24 100 OL: Brownish yellow (10 YR 6/8) SILT; some clay, trace black OL: Dark yellowish brown (10 YR 4/4) to brownish yellow SILT; -21 little clay, little black silt. Stiff, dry. GM: Light gray (10 YR 7/2) to very pale brown (10 YR 7/3) SILT and fine to medium GRAVEL; little fine medium sand

-22



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-05B

Log of	Borir	ıg: N	AW-05B				
Depth (ft)	USCS Log		Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
			SILT and fine to medium GRAVEL; little fine medium sand (carbonate sands/gravel.)				BEGIN CARBONATE ZONE
25			GM: Light gray to very pale brown fine to medium GRAVEL and SILT; very brittle; little medium sand, trace clay. Dry. (Carbonates)		24-28	89.6	
26 27							
28			GM: Light gray/very pale brown fine to medium GRAVEL; some		28-32	100	SB-03-06-05-28-32
29			silt, some medium sand, trace clay. Dry. (carbonates)				
30 31			GM: Very pale brown medium GRAVEL; some silt, some medium sand, little clay. Slightly moist (carbonates)				
32			CD V and be an field and find a CAND		32-36	50	
33			SP: Very pale brown/light gray medium to coarse SAND; some coarse gravel, little clay, trace silt. Very moist, wet. (carbonates)		32 30		
34 							
35 - 36							
37			GP: Very pale brown medium GRAVEL; some medium to coarse sand, little silt, wet. (Carbonates)		36-40	75	END CARBONATE ZONE
38			GM: Yellowish brown SILT and coarse GRAVEL; some clay; moist.				
39 -							
40 41			GM: Brownish yellow (10 YR 6/6) medium to coarse GRAVEL and SILT; little clay. Very moist.		40-44	50	
42							
43 							
44 45			CL: Dark yellowish brown (10 YR 4/6) CLAY, some silt, moist.		44-47	100	
45 - 46			CL-ML: Light gray (10 YR 7/2) and very pale brown (10 YR 7/3) CLAY and SILT; little fine gravel. Slightly moist, stiff.				
47	Н: :: Н						
	工::		ML: Very pale brown SILT; some fine to medium gravel and clay; slightly moist, stiff.		48-51	61	
-49			SM: Brownish yellow/very pale brown fine SAND and SILT;				



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-05B

Log of			/1 VV -USD				
Depth (ft)	USCS Log	Sample Interval	Description of Materials	VOC (nnm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
(11)				(ppm)			
50			trace clay, slightly moist. Dense.				
52 -		•	SW: Greenish gray (Gley 1 6/1) and some brownish yellow fine SAND; little silt, trace clay. Slightly moist.		52-55.67	100	
53 -		•	CL-ML: Brownish yellow/greenish gray CLAY and SILT; little fine sand, trace purplish clay.				
54 -		,	SM: Greenish gray/brownish yellow fine SAND and SILT. Moist.				
- -55		Ì	CL: Brownish yellow CLAY. Moist.				CARBONATE ZONE
- 56		•	GM: Medium to coarse very pale brown GRAVEL; some medium sand, little silt. Wet. (carbonates) GM: Greenish gray (Gley 1 6/1) and very pale brown SILT,		56-58.5	100	
- 57			CLAY, and fine GRAVEL. Very stiff. Dry (carbonate).				
- 58							
- 59							
- 60					60-62	100	
- 61			ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; little clay, little fine sand. Slightly moist, fairly stiff.		00-02	100	
- 62		-	MI. Casarish array SH.T. little fire and trace iron oxides		62-64	100	
-		-	ML: Greenish gray SILT; little fine sand, trace iron oxides.		02 0.	100	
63 			SW: Light yellowish brown (10 YR 6/4) fine SAND; wet.				
64 		,	SM: Greenish gray SILT and yellowish brown fine SAND; very moist. SW: Greenish gray/light yellowish brown fine SAND; little silt.		64-65.67	90	
65			Very moist.				
	 	•	ML: Yellowish brown SILT; little clay and fine sand. Moist.		66-66.5	100	
67							
-68			OL: Very dark gray (10 YR 3/1) SILT; little fine sand, trace clay;		68-69.67	100	
69			trace shells. Stiff.				
70							
- ₋₇₁							



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-06A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 11/6/2006 Boring/Well:MONITORING WELL 11/7/2006 Depth of Hole (ft): 20.00 Date Completed: UTM NAD83 Elevation (ft): 13.53 Northing (m): 868268.25 Easting (m):761468.57 Depth to Water (ft): 3.60 Conditions: Asphalt between light poles 060/061 Comments: Screening Sample Interval USCS Recovery Depth Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) - 0 - -2 -3 -4 -5 -6 -8 8-12 83 ML: Strong brown (7.5 YR 5/6) SILT; little reddish silt; trace black gravel, trace clay, trace fine sand. -9 ML: Strong brown/dark reddish brown (5 YR 3/4) SILT; some yellowish brown; trace white clay. Stiff material, fairly dry. - -10 - -11 - -12 12-16 100 CL-ML: Yellowish/reddish SILT and white CLAY; lenses of medium sand, fine gravel at lower end of sample; some black organics; wet at depth. - -13 -14 - -15 - **-**16 16-20 100 CL: Strong brown CLAY; little reddish silt; little fine black CL: Light greenish gray (Gley 2 7/1) CLAY; little reddish mottles of silt; trace fine gravel. - -17 -18 - **-**19 CL-ML: Yellowish brown (10 YR 5/6) CLAY and SILT; little light greenish gray clay - **-**20 END OF SAMPLING

└-21



FORT BUCHANAN **PUERTO RICO**

Geologist: BILL HARVEY Log of Boring: MW-06B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Drill Type: HSA Equipment: Date Started: 11/2/2006 Boring/Well:MONITORING WELL 11/3/2006 Depth of Hole (ft): 67.00 Date Completed: UTM NAD83 Elevation (ft): 13.25 Easting (m):761473.77 Depth to Water (ft): 8.23 Northing (m): 868277.70 Conditions: Comments: Screening Sample Interval USCS Recovery Depth Depth Remarks/Sample Name Description of Materials VOC Log (ft) (%) (ft) (ppm) 0 0-444 GP: Dark bluish gray fine to coarse GRAVEL; some coarse sand, -1 CL: Dark yellowish brown (10 YR 4/4 CLAY; some mixed gravel, brick (fill). Dry. -2 -3 4-8 42 SB-03-06-06-4-8 $CL\mbox{:}\mbox{ Dark yellowish brown CLAY; little dark blue gravel; trace sand. Stiff. Dry.$ CL-ML: Dark greenish gray (Gley 2 4/1) CLAY and SILT; little -5 yellowish brown sand, moist. Some organics ML: Yellowish brown (10 YR 5/8) SILT, some clay; trace fine sand. Dry. -6 - -7 - -8 8-12 0 NS: NO RECOVERY, HIGH AMOUNT OF WATER IN HOLE -9 -10 - -11 -12 12-16 94 CL-ML: Alternating layers of yellowish brown/reddish brown (5 YR 4/4) SILT with white CLAY; fairly regular intervals; more silty than clay. Trace gravel. Stiff, dry. -13 -14 -15 -16 16-20 100 CL-ML: Striated yellowish brown SILT; some red silt, little white clay, trace black silt (old organic matter). -17 - **-**18 -19 -20 31 20-24

GW: Coarse light gray/brown GRAVEL.



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-06B

Depth	USCS						
(ft)	USCS Log	Sample Interval	Description of Materials	VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
21 22 23			SM: Yellowish brown (10 YR 5/6) and black fine to medium SAND and SILT. Moist. OL: Yellowish brown/black SILT; little fine sand. CL-ML: Yellowish brown/reddish brown (5 YR 4/4) SILT; some white clay, trace fine sand.				
24 25	<u> </u>		NS: NO RECOVERY. SPOON COLLECTED REMAINING CLAY FROM PREVIOUS SAMPLE. COARSE GRAVEL FRAGMENT AT BOTTOM OF SPOON.		24-28	0	
28 29	_;; ;; ;;		CL-ML: Brownish yellow (10 YR 6/6) CLAY and SILT mottled with reds, blacks, and whites (blacks likely remnant organics). Very stiff.		28-32	100	
30 31							BEGIN CARBONATE ZONE
- 32 -	 		ML: Yellow (10 YR 7/6) SILT, grading to very pale brown SILT, trace fine gravel (carbonates). CL-ML: Very pale brown (10 YR 7/3, 8/2) little black SILT and CLAY; trace fine gravel.		32-36	100	SB-03-06-06-32-36
33 34			GM: Very pale brown fine to coarse GRAVEL and SILT; little clay, trace medium sand (carbonates). Moist.				
35 - 36			GM: Very pale brown fine to medium GRAVEL and SILT; trace		36-40	67	
37			clay, trace medium sand. Moist. GM: Very pale brown fine to medium GRAVEL; some silt, some				
38 - 39			medium sand. Very moist (carbonates).				
40 - 41			GM: Very pale brown fine to medium GRAVEL and SILT; little coarse sand, trace clay. OL: Yellowish brown (10 YR 5/6) SILT; some black silt		40-44	71	
			(organics); little clay. GP: Very pale brown medium to coarse GRAVEL; some coarse sand, trace silt. OL: Yellowish brown SILT; some black silt, little clay.				
-			GP: Yellowish brown coarse GRAVEL; little silt.				
- 45			GM: Yellowish brown to very pale brown fine to coarse GRAVEL and SILT; trace sand and clay, more sand at bottom of spoon. Moist (carbonates).		44-45.7	100	



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-06B

Log of	Log of Boring: MW-06B											
Depth (ft)	USC	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name					
	 • • •		1	41 /	<u> </u>	 						
- -46		<mark>⊠</mark>										
47		<mark>⊠</mark>										
- "		<mark>⊠</mark>										
48		<mark>⊠</mark> ⊠	CALLY COLUMN		48-52	62.5						
-		<mark>.</mark> ⊠	GM: Very pale brown fine to medium GRAVEL; some silt, trace clay and sand.		40-32	02.3						
-49		. l <u>e</u>	GP: Yellowish brown medium angular GRAVEL; little coarse									
<u> </u>	⊠ .		sand, wet.									
5 0			ML: Very pale brown SILT; some fine to medium sand, trace fine gravel. Moist.									
- 51			graver. Morse.									
- 01												
52			CM V II : 11 CD AVEY 100 T		52-52.67	100						
-		<mark>⊠</mark> 	GM: Yellowish brown to very pale brown GRAVEL and SILT; very moist.		32-32.07	100						
53			ML: Very pale brown SILT; stiff, dry.									
			ML: Light gray (10 YR 7/2) to very pale brown SILT; little fine gravel. Stiff.									
- -54					54-55.5	100						
55												
55												
56					56-58	100						
-			ML: Light gray SILT; stiff; little/trace medium sand.		30-38	100						
57												
-			ML: Yellowish brown/light gray SILT; trace clay, stiff.									
58		× i	GM: Light gray SILT and fine GRAVEL/coarse SAND. Moist.		58-58.85	100						
59		× ⊠										
59		<mark>⊠</mark>										
60		<mark>⊠</mark> ⊠			50 50 5 7	100						
-		∆. ⊠	GM: Very pale brown (10 YR 7/3) and light gray (10 YR 7/2) medium GRAVEL; some coarse sand and silt. Moist.		60-60.67	100						
-61		<mark>⊠</mark>	(Carbonates)									
-		<mark>∵.</mark> ⊠										
-62	Ī	Ī	ML: Light gray SILT; some fine gravel; some coarse sand, trace		62-62.85	100						
-			clay. Moist.									
- -63												
64												
			ML: Light gray SILT; some medium gravel.		64-64.85	100						
65		⊠ ⊠	GM: Light greenish gray (Gley 2 7/1) to greenish gray (Gley 2 6/1) SILT and fine GRAVEL; grading to SILT; little gravel. Moist to dry.									
1		<mark>⊠</mark>										
- -66			ML: Greenish gray SILT; some fine to medium gravel/coarse		66-67	100						
67			sand. Dry.									
-01			END OF SAMPLING									
-68			J									



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: SB-7 Name of Driller:IVAN Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/10/2006 10/13/2006 Depth of Hole (ft): 90.00 Boring/Well:BOREHOLE Date Completed UTM NAD83 Elevation (ft): 9.61 Northing (m):868796.37 Easting (m): 761825.39 Depth to Water (ft): Conditions: Asphalt between light poles 063/064 Comments: Screening Sample Interval # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 0.5-255 GP: Fine to Coarse subangular GRAVEL; some medium gray (10 - -1 7/6 8/6 × -2 2-3.5 33 7/6 CL: Yellowish brown (10 YR 5/6) CLAY; some medium to coarse sand; trace gravel; wet. 8/6 -3 10/6 78 3.5-5 12/6 CL: Gray (2.5 Y 5/1) CLAY; fairly stiff; trace fine to medium -4 2/6 2/6 -5 5-6.5 78 2/6 SB-03-06-07-5-6 - **-**6 4/6 8 6.5-8 3/6 CL: Gray to yellowish brown (10 YR 5/4) CLAY; soft. 1/6 1/6 -8 CL: Gray yellowish brown, brownish yellow (10 YR 6/6) CLAY; 8-9.5 94 1/6 0/6 -9 1/6 9.5-11 1/6 CH: Mottled yellowish brown, reddish brown (5 YR 4/4) CLAY; - -10 stiff; some dark yellowish brown clay. 1/6 2/6 - -11 CH: Highly mottled (Gley 2 7/1) bluish gray, reddish brown, black CLAY; trace weathered rock (sand). Medium stiffness, 11-12.5 39 2/6 2/6 fairly plastic. - -12 1/6 12.5-14 89 1/6 CH: Light bluish gray (Gley 2 7/1) CLAY; yellowish brown (10 YR 5/4) clay, trace sand. Medium stiffness, fairly plastic. - **-**13 1/6 2/6 - -14 14-15.5 55 3/6 CL: Light bluish gray CLAY; trace silt. Stiff. 3/6 - -15 3/6 15.5-17 67 3/6 - -16 2/6 SB-03-06-07-16-17 3/6 -17 17-18.5 89 4/6 CL: Strong brown (7.5 YR 4/6) CLAY; some light bluish gray; grading to brown clay, some silt; trace fine gravel. Stiff. 5/6 -18 7/6 18 5-20 78 10/6 CL: Brown (7.5 YR 4/6) stiff CLAY; some silt; trace fine -19 gravel/coarse sand, very dark grayish brown (10 YR 3/2), more 5/6 sand at depth. 7/6 -20 20-21.5 78 10/6 CL: Brown CLAY, some silt, trace fine gravel grading to yellowish brown (10 YR 5/6) clay, little sand. Very stiff. 3/6 -21 6/6 21.5-23 78 9/6 CL: Brown CLAY; little silt and sand, trace dark brown gravel. -22 4/6



FORT BUCHANAN PUERTO RICO

Log of Boring: SB-7									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name	
			CL: Yellowish brown and light bluish gray CLAY; stiff; little silt, trace organics.		23-24.5	83	6/6 6/6 2/6 4/6		
- 25			CL: Light brownish gray (10 YR 6/2) to brown CLAY; trace fine gravel/coarse sand; stiff; some fine sand at bottom of interval.		24.5-26	78	6/6 3/6		
26 			SC: Light brownish CLAY and SAND; wet. CL: Light gray (10 YR 7/2) CLAY; little silt; trace black		26-27.5	94	4/6 6/6 5/6		
27 28			organics. SW: Yellowish brown fine SAND. Wet. CL: Light gray CLAY; some fine sand; little organics.		27.5-29	83	6/6 8/6 4/6		
- 29			SW: Dark gray fine SAND (10 YR 4/1). SP: Yellowish brown to dark grayish brown (10 YR 4/2) fine SAND; trace clay at depth, trace organics.		29-30.5	89	6/6 7/6 7/6		
30 31			SW: Light brownish gray (10 YR 6/2) to yellowish brown		30.5-32	89	8/6 13/6		
32			medium to coarse SAND; trace clay. SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and		32-33.5	89	4/6 10/6 10/6		
- 33			clay grading to yellowish brown medium SAND. SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR		33.5-35	55	6/6 6/6 12/6		
34 - 35			3/2) to yellowish brown fine to medium SAND; trace clay and silt.				5/6 7/6		
36	■ · · · · · · · · · · · · · · · · · · ·		SP: Yellowish brown fine SAND; little clay. CL: Yellowish brown to brown CLAY; trace sand. GP: Brownish yellow (10 YR 6/6) medium to coarse GRAVEL.		35-36.5	83	9/6 6/6 9/6		
37			GP: Fine to coarse yellowish brown GRAVEL; some coarse sand, trace clay.		36.5-38	83	13/6 7/6 3/6		
38 - 39			GC: Brownish yellow to yellow (10 YR 6/6, 7/6) medium GRAVEL; little clay; to CLAY and SAND; to medium GRAVEL; some medium sand, trace clay.		38-39.5	67	2/6 3/6 5/6		
- 40 			GC: Brown CLAY and medium SAND/fine GRAVEL; soft. GP: Brownish yellow medium GRAVEL; little clay.		39.5-41	67	6/6 4/6		
41			GP: Brownish yellow/yellow (10 YR 6/6, 7/6) medium SAND and fine GRAVEL; little brown clay.		41-42.5	50	7/6 8/6 5/6		
42 43			CL: Brown CLAY; little fine sand to brown CLAY, some yellowish brown medium sand, little fine gravel.		42.5-44	78	4/6 3/6 5/6		
- 44 -	/::/:: ::/::/		SC: Yellow medium to coarse SAND and CLAY; some medium gravel.		44-45.5	61	9/6 7/6 20/6		
45 46			SC: Yellow medium SAND; some medium gravel; some clay.		45.5-47	75	20/6 4/6		
			CL: Light gray (10 YR 7/1) to yellowish brown (10 YR 5/4)		47-48.5	100	9/6 22/6 50/6		
- 48 -			CLAY; very stiff; some fine gravel; little fine sand; trace silt.				50/6 50/6		
49 50			NS: DRILLED THROUGH ROCK				50/5		
- -50	1,1.1			1		1	[



FORT BUCHANAN PUERTO RICO

Log of	Borir	ıg: S	SB-7					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
ŀ			GC: Very pale brown (10 YR 7/4) CLAY and medium GRAVEL;		50-51.5	94	34/6	
51	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		some medium sand.				50/6	
- 50	<u> </u>		CL-SC: Limestone to very pale brown CLAY; some medium	-	51.5-52	100	50/5	
52 -			sand.				50/5	
53	<u> </u>		CC. Verry note because (10 VD 7/2) CLAV and fine subspection		53-54.4	100		
-			GC: Very pale brown (10 YR 7/3) CLAY and fine subangular GRAVEL; some medium to coarse sand; very tight.		000	100	20/6	
- -54	<u> </u>						25/6	
- 55			CL: Very pale brown CLAY; some medium to coarse sand, some		54.5-55	100	50/4	
-			fine gravel.				50/5	
56					56-57.5	28		
-							30/6	
57							60/6	
58					57.5-58.1	100	32/6 27/6	
-							60/2	
59			LIMESTONE: Weathered Limestone	1	59-59.5	50		
60							100/5	
-60					-0			
61	<u> </u>		GC: Coarse GRAVEL; some very pale brown medium sand, trace clay.		60.5-61.5	67	23/6	
-							70/6	
62					62-63.5	44		
63	· / · / · /						29/6	
- 00				-	63.5-65	55	17/6 13/6	
64	<u>(</u> ⊠//.]		GC: Very pale brown medium SAND to pale brown/brownish yellow medium GRAVEL; some clay.		03.3-03	55	20/6	
-							24/6	
-65	* • • • · · · · · · · · · · · · · · · ·		SP: Very pale brown (10 YR 7/3) fine to medium SAND; trace		65-66.5	67	42/6	
66	1/1/		\silt and clay. GC: Brownish yellow (10 YR 6/6) CLAY and GRAVEL; trace				28/6	
-			silt and sand. Very stiff.		66.5-68	89	25/6 14/6	
-67			CL: Very pale brown CLAY; some silt; little fine sand; trace medium gravel. Stiff.				4/6	
68							22/6	
00			NS: No Recovery		68-69.5	0	29/6	
69							10/6 11/6	
-	 ⊠		GP: Very pale brown (10 YR 7/3) medium angular GRAVEL and				50/1	
-70	⊠.		medium SAND; little clay.		70-70.25	100	70/3	
71	⊠ . ∵ E							
-			GP: Yellow (10 YR 7/6) medium to coarse SAND and medium angular GRAVEL; trace silt.		71-71.8	90	39/6	
72			,				50/4	
70			GC: Very pale brown medium SAND and medium GRAVEL;	-	72.5-72.7	100		
73	1.7.7.		some clay, trace silt.				50/2	
74				-	74 74 2	100		
+	::: <u>:</u> ::::::::::::::::::::::::::::::::		CL-ML: Brownish yellow (10 YR 6/6) CLAY; some silt; trace sand and gravel to very pale brown SILT.		74-74.2	100	50/2	
75	五::							
76			ML: Light gray (10 YR 7/1) SILT; some clay. Very stiff, very	1	75.5-75.75	100		
-76			dry.				100/3	
77			ML: Light greenish gray (Gley 2 7/1) SILT; some clay, very stiff,	-	77-77.5	100		
+			very dry.				100/5	
70			I	ı	I	I	ı	1



FORT BUCHANAN PUERTO RICO

Edg of Boring. SB 7									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name	
(-3)				(ppm)			π Inches		
			ML: Greenish gray (Gley 2 6/1) to very dark bluish green (Gley 2 3/1) SILT; some clay, very dry, very stiff; some sand at depth.		78.5-79.9	100	20/6		
80 - 81			GP: Light greenish gray (Gley 2 7/1) coarse SAND and medium to coarse GRAVEL; little silt, trace clay. Wet.		80-80.5	100	30/6 60/4 60/5		
- 82 -		•	ML: Greenish gray (Gley 2 6/1) SILT; some clay, little fine gravel.		81.5-82	100	60/5		
83 84			ML: Greenish gray (Gley 2 5/1) SILT; some clay, little fine gravel.		83-83.5	100	100/6		
- 85 -		•	GP: Greenish gray coarse GRAVEL; some coarse sand and clay.		84.5-84.9	100	100/4		
86 87			ML: Greenish gray SILT; little clay, little coarse sand, trace medium angular gravel.		86-86.4	100	100/4		
- 88			ML: Greenish gray SILT; some medium to coarse sand/fine gravel; little clay.		87.5-87.9	100	100/4		
			ML: Greenish gray SILT; some clay, trace coarse gravel.		89-89.5	100	100/5		
			\ END OF SAMPLING /						



FORT BUCHANAN **PUERTO RICO**

Geologist: BILL HARVEY Log of Boring: MW-07A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 11/1/2006 11/1/2006 Depth of Hole (ft): 36.00 Boring/Well:MONITORING WELL Date Completed: Elevation (ft): 9.17 UTM NAD83 Northing (m): 868789.89 Easting (m):761817.53 Depth to Water (ft): 4.56 Conditions: Asphalt between light poles 064/065 Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) Γ^0 **⊢** -1 -2 - **-**3 -4 -5 - **-**6 - -7 **– -**8 -9 -10 -11 -12 -13 -14 -15 - -16 . -- -17 --18 -19 -20 -21 - -22 - -23 - -24 -25 -26 CL: Strong brown (7.5 YR 5/6) CLAY; trace black mottles, trace silt. Stiff. 26-30 62.5 -27 - **-**28 CL: Strong brown with black mottles CLAY; little fine to medium sand. Slightly moist. Stiff. - -29 SW: Strong brown fine SAND; trace silt/clay. Moist. -30 CL: Strong brown CLAY; little black striations, some fine sand; trace silt. Stiff. -31 **-- -32** 32-36 67 CL: Brownish yellow (10 YR 6/6) CLAY; trace silt, trace light -33 blue clay. -34 CL: Brownish yellow CLAY; intervals of black fine SAND; -35 CL: Brownish yellow CLAY; little fine sand, trace carbonate; -36 -37 trace light blue clay, trace silt.

END OF SAMPLING



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-07B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/30/2006 10/31/2006 Depth of Hole (ft): 73.00 Boring/Well:MONITORING WELL Date Completed: Elevation (ft): 9.24 UTM NAD83 Northing (m): 868796.37 Easting (m):761825.39 Depth to Water (ft): 4.59 Conditions: Asphalt between light poles 063/064 Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name **Description of Materials** VOC Log (ft) (%) (ft) (ppm) L₀ -1 -2 **--** -3 - -4 --- -5 --- -6 - -7 - -8 - -9 -10 -11 -12 -13 -14 F-15 <u></u>-16 <u>-17</u> -18 -19 -20 **-- -21** - -22 - -23 **--24** - -25 - -26 -27 -28 -29 - -30 - -31 - -32 - **-**33 **-- -34** -- -35 --- -36 --- -37 - -38 -39 |- -40 -41 -42 -43 --- -44 -45 - -46 -47



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-07B

Log of Bornig. WW W/B									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name		
48 49									
52 53 54									
55 56									
57 58 59									
60 61									
62 63 64			SP: Very pale brown (10 YR 7/3) fine to medium SAND; wet.		63-66	100			
65 66			GP: Very pale brown (10 YR 8/3) coarse GRAVEL; some coarse sand, little silt. Very moist. (carbonate). GM: Yellowish brown (10 YR 5/8) SILT; some fine-medium						
67 68 69			gravel, little clay, stiff. Slightly moist.		69-69.67	100			
70 71			ML: Brownish yellow (10 YR 6/6) SILT; mottled with light bluish gray (Gley 2 7/1) silt; little clay; trace sand. Slightly moist, stiff. SM: Very pale brown fine to medium SAND and SILT; little fine		09-09.07	100			
72 73 74			SM: very paie frown fine to medium SAND and SiL1; fittle fine gravel. Moist.						



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-02 Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 12/6/2006 12/7/2006 Depth of Hole (ft): 40.00 Date Completed: UTM NAD83 Elevation (ft): 61.05 Easting (m):760773.70 Gauged Depth to Water (ft): 19.55 Northing (m): 866516.94 Conditions: Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) 0 41.7 0-4GP: Pale red (10R 7/3) coarse GRAVEL; moist. CL: Red (10R 4/6) and bluish gray (Gley 2 6/6) CLAY; high plasticity; little silt; dry. - -2 -3 -4 62.5 4-8 SB-03-06-02-4-8 CL: Red and bluish gray CLAY; highly plastic, trace silt and fine -5 -6 -7 -8 8-12 100 CL: Red/bluish gray CLAY; little silt; some plasticity. Dry. -9 CL: Yellowish brown/red/bluish gray CLAY and SILT; dry. CL: Yellowish brown (10 YR 5/8), some light gray (10 YR 7/2) CLAY and SILT; little black organics; trace fine sand, dry. - -10 - -11 - -12 12-16 91.7 SM: Very pale brown (10 YR 7/4) to brownish yellow/light gray fine SAND and SILT; more sandy at depth. Mostly dry. - -13 -14 ML: Brownish yellow/black SILT; trace fine sand and clay. - -15 - -16 16-19 100 ML: Grayish brown (10 YR 5/2), yellowish brown, black SILT and CLAY; low plasticity, dry. - -17 GM: Very pale brown (10 YR 7/4, 7/3) SILT; fine medium GRAVEL, and coarse SAND; dry. BEGIN CARBONATE ZONE . . ⊠ ... -18 . . ⊠ . . ⊠ - -19 ⊠ ∴ ⊠ - **-**20 20-22 100 GM: Very pale brown (little yellowish brown, light gray) medium GRAVEL, coarse SAND, and SILT; slightly moist to very moist. . . Ø - -21 ☒ -22 . . ⊠ ⊠ ⊠ -23 ...



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-02

Log of Bornig. MW-02									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name		
			GM: Very pale brown (10 YR 8/2, 7/3) SILT and medium to coarse GRAVEL; dry. GM: Very pale brown fine to medium GRAVEL and SILT; slightly moist at depth. SM: Light gray fine SAND; some silt, moist. SM: Brownish yellow (10 YR 6/6) fine SAND and SILT; slightly moist. OL: Brown (10 YR 5/3) to dark bluish gray (Gley 2 4/1) SILT; high amount of shells in bluish gray material; little fine gravel; trace clay. Dry.		24-24.9 26-27.67 28-31.67		END CARBONATE ZONE SB-03-06-02-26-28		
31 32 33 34		,	OL: Dark bluish gray SILT; carbonate fragments. Dry. GM: Greenish gray (Gley 2 6/1) and very pale brown fine to medium GRAVEL and SILT (carbonates); moist.		32-33.67	100	CARBONATES		
35 36 37			SP: Very pale brown fine to medium SAND; some fine to medium gravel, little silt near bottom of interval. Wet.		35-37	100			
38 39 40 41			SP: Very pale brown/reddish brown fine SAND; little medium gravel, trace silt. Wet. SM: Light greenish gray fine SAND and SILT; moist. ML: Dark bluish gray SILT; trace clay; stiff, mostly dry.		38-39.67	100			



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-03A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/27/2006 10/27/2006 Depth of Hole (ft): 33.00 Boring/Well:MONITORING WELL Date Completed: Elevation (ft): 36.49 UTM NAD83 Northing (m): 867224.75 Easting (m):761011.49 Gauged Depth to Water (ft): 26.80 Conditions: Asphalt between light poles 054/055 Comments: Screening Sample Interval USCS Recovery Depth Depth Remarks/Sample Name Description of Materials VOC Log (ft) (%) (ft) (ppm) **⊢** 0 - -1 - **-**2 - -3 - -4 - -5 - **-**6 - -7 - -8 - -9 **--10** -11 -- -12 - -13 **-- -14** -- -15 - -16 - -17 **-- -18** - -19 - **-**20 - -21 - -22 - -23 - -24 24-28 21 SM: Very pale brown (10 YR 7/3) fine SAND; little silt. Moist. - **-**25 ML: Brownish yellow (10 YR 6/6) SILT; little clay. Low stiffness, moist. - -26 - -27 - **-**28 - -29 GM: Very pale brown to light gray (10 YR 7/2) fine to medium GRAVEL; some coarse sand and silt, trace clay. Calcium carbonates. Wet to moist, very stiff at bottom. 100 29-33 . . ⊠ **-- -30** . . ⊠ . . ⊠ - -31 . . ⊠ . . ⊠ - -32 . . . ⊠ ⊠ **--33**

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FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-03B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/25/2006 Depth of Hole (ft): 55.00 Boring/Well:MONITORING WELL 10/26/2006 Date Completed: Elevation (ft): 36.22 Northing (m): 867219.90 Easting (m):760997.56 UTM NAD83 Gauged Depth to Water (ft): 14.65 Conditions: Asphalt between light poles 053/054 Comments: Sample Interval Screening USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (ft) (%) (ft) (ppm) **⊢**0 **--** -1 - -2 **– -**3 - -4 **--**5 **- -**6 - -7 - -8 **--9** -10 -11 **-- -12 --** -13 -14 **--** -15 **-- 16 --** -17 - -18 - -19 --20 **-- -21** -22 -- -23 - -24 - -25 **-- -26** - -27 - -28 **-- -29** -30 **- -31 -- -32 -- -33**

-34



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-03B

Depth			Description of Materials	Screening	Depth	Recovery	Remarks/Sample Name
(ft)	Log	Sar Inte		VOC (ppm)	(ft)	(%)	Remarks/Sample Name
- 35							
36							
37							
38							
39							
40							
41							
42							
43							
- 44							
- 45			CM C : I (CI A5/I) I CDAVIE		45-45.67	100	
46			GM: Greenish gray (Gley 2 5/1) medium GRAVEL; some coarse sand and silt; white carbonates. Moist.		43-43.07	100	
47			CD. Links arranish array (Class 2.7/1) and district to a corner CDAVICI		47-48.33	100	
48			GP: Light greenish gray (Gley 2 7/1) medium to coarse GRAVEL and coarse SAND; trace/little silt. Wet.		17 10.55	100	
49			SM: Greenish gray fine SAND; some silt. Very moist. GM: Light greenish gray medium to coarse GRAVEL; some sand		49-49.5	100	
-50			and silt.		., ., .,		
			GW: Light greenish gray coarse GRAVEL; wet. ML: Dark greenish gray (Gley 2 4/1) SILT; some coarse sand and		51-52	100	
52			fine gravel; calcium carbonates. Moist. GM: Greenish gray fine to medium GRAVEL: some silt; trace		01.02	100	
53			medium sand. Moist.		53-54	50	
54			GM: Greenish gray medium SAND and fine GRAVEL; some silt calcium carbonates. Moist.				
55			GM: Greenish gray SILT; some fine to medium gravel, little medium sand. Stiff, moist.				
L ₋₅₆							



Log of Bor	ring: M	IW-	04A		Geologist: BILL HARVEY				
Subcontractor:	JACA AN	ND SI	ERRA	Name of D	Name of Driller:EDUARDO SANTIAGO				
Equipment: H	OLLOW	STEM	M AUGERS (HSA) 8-in OD				D	rill T	ype: HSA
Date Started:	11/30/200)6	Date Completed: 11/30/2006	Depth of H	ole (ft): 4	1.00		Borir	ng/Well:MONITORING WELL
Elevation (ft):	42.00		Northing (m): 867307.44 Easting	(m):761301.	34 UT	M NAD8	13	Gaug	ged Depth to Water (ft): 32.14
Conditions:									
Comments:									
Depth (ft) USC Log			Description of Materials	_	Screening VOC (ppm)	Depth (ft)	Reco	- 1	Remarks/Sample Name
36 ⊠ 37 □ 38 □ 39 ⊠		moist. ML: C SILT; Most GM: I mediu clay, I GP: B mediu GP: V SANI GM: I	Light greenish gray (Gley 1 7/1), light gray (10 hish yellow (10 YR 6/8) very fine SAND and Solvenish gray (Gley 1 6/1) and yellowish brow little clay; little white gravel, more at depth. Very little coarse GRAVEL, SILT, and medium SA moist to wet. Brownish yellow (10 YR 6/6) coarse GRAVEL with the gravel of	orn (10 YR 5/6) /ery stiff. D YR 8/2) .ND; trace; little		31-34 35-38.5 39-41	100 88 92		



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-04B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 11/13/2006 Boring/Well:MONITORING WELL 11/30/2006 Depth of Hole (ft): 69.00 Date Completed: UTM NAD83 Elevation (ft): 41.88 Northing (m): 867304.94 Easting (m):761290.88 Gauged Depth to Water (ft): 18.71 Conditions: Asphalt between light poles 054/055 Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) 0 0 - 460 CL: Dark yellowish brown (10 YR 4/4) with reddish blue mottled CLAY; trace fine gravel. - -2 -3 -4 CL: Dark yellowish brown CLAY with red, blue, and green striations/mottles; trace wood fragments and silt. Strong gasoline odor, especially in greenish-blue silty material. 35 4-8 62.5 SB-03-06-04-4-8 -5 157 -6 150 -7 200 -8 8-12 88 CL: Dark yellowish brown/greenish gray (Gley 2 6/1) CLAY; mottled with reds, dark browns; trace reddish silt; trace fine -9 gravel. - -10 - -11 - -12 12-16 83 CH: Dark yellowish brown mottled CLAY; highly plastic, with reds, blues, greenish-grays; trace fine gravel. - -13 SC-SM: Yellowish red (5 YR 4/6), brownish yellow (10 YR 6/6), and white CLAY and SAND; more sand at depth; little silt. Stiff, -14 cement-like. - -15 - -16 16-20 CL: Yellowish red to strong brown (7.5 YR 5/6) CLAY; some silt; trace fine white sand. Very stiff, low plasticity, dry. 96 - -17 -18 - **-**19 -20 100 20 - 24ML: Yellowish red (5 YR 4/6) SILT; some clay, trace fine sand - -21 -22 CL: Yellowish brown (10 YR 5/8) and white CLAY with some yellowish red silt; stiff, medium plasticity. -23



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-04B

Log of	Born	ng: N	AW-04B				
Depth (ft)		1 1	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
24 - 25			ML: Yellowish brown/yellowish red (5 YR 5/8) SILT and CLAY; very stiff, trace fine sand.		24-28	100	
26			ML: Yellowish red SILT; some fine sand; some yellowish brown silt and sand.				
27 -			CL: Yellowish brown CLAY; some yellowish red clay; trace black organics (silt); stiff, medium plasticity.				
28 29			CL: Yellowish brown (10 YR 5/8) CLAY; some silt; little fine white sand; little black silty clay. Stiff.		28-32	100	
			ML: Very pale brown/yellowish brown SILT; some clay, little fine gravel.				
31 -			SP: Light gray (10 YR 7/2) fine SAND; some yellowish brown sand, trace silt. Slightly moist.				
32 33			SM: Light gray, some yellowish brown fine SAND and SILT. ML: Light gray/yellowish brown SILT; little clay, trace fine white gravel.		32-35.5	100	SB-03-06-04-32-36
34 35	×××						
- 36			GM: Light gray/white SILT and GRAVEL; slightly moist. GM: Very pale brown (10 YR 7/3, 7/4) medium GRAVEL and		36-37.67	100	
37			coarse SÁND; little silt; trace clay increasing to some silt/clay at depth. Very moist/wet.				
38 							
39 - 40					40-43	100	
- 41			GM: Very pale brown (10 YR 7/3) medium GRAVEL; some silt, little coarse sand. Very moist. ML: Very pale brown/yellowish brown to greenish gray (Gley 1 6/1) SILT; little fine gravel; trace clay. Very stiff, slightly moist.		40-43	100	
42 			0/1/31L1, fittle line gravel, trace eray. Very stiff, stignity moist.				
43 44							
45			ML: Pale green/grayish green (Gley 1 6/2, 5/2) SILT; trace clay; stiff. Dry.		44-46.5	100	
- 			ML: Pale green/grayish green SILT; little fine gravel. Dry.				
47 -							
48 - 49			GM: Very pale brown (10 YR 8/2) medium GRAVEL; some coarse sand; little silt. Wet.		48-48.75	100	
50			GM: Light brownish gray (10 YR 6/2) fine GRAVEL and		50-50.5	100	
- 51			medium SAND; little silt. Wet.				
52 - 53			OL: Greenish gray (Gley 2 5/1) SILT; some shells, trace clay; stiff, dry.		52-53.6	100	



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-04B

LUS UI	DOIL	٠٥٠ -١	ערט־וווע				
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
- 54 - 55			GM: Coarse greenish gray GRAVEL; some silt. Very moist. OL: Greenish gray SILT; trace white shells and clay. Slightly moist.		54-54.5	100	
- 56 - 57		,	GM: Light greenish gray fine to medium GRAVEL; some coarse sand; little silt; very moist. ML: Bluish gray (Gley 2 5/1) SILT; some fine sand, very moist.		56-56.8	100	
58 59			SM: Dark greenish gray (Gley 2 4/1) fine SAND; little silt. Wet. GP: Dark greenish gray medium GRAVEL; little fine sand, trace silt. Wet.		58.8	100	
- 			GM: Dark greenish gray (Gley 2 4/1) fine to medium GRAVEL and SILT; little fine sand; moist.		60-60.5	100	
61 62 63			GM: Bluish gray (Gley 2 6/1) fine to medium GRAVEL; some silt, little fine sand. Slightly moist. GM: Greenish gray (Gley 2 5/1) fine GRAVEL, medium SAND, and SILT. Moist.		62-62.8	100	
- 64 - 65			GP: Light greenish gray (Gley 2 7/1) coarse GRAVEL; trace coarse sand and silt. Slightly moist.		64-64.5	100	
			ML: Light greenish gray SILT; some fine gravel, little coarse sand, slightly moist.		66-66.67	100	
68 69			ML: Light greenish gray SILT; some medium to coarse gravel, trace medium sand, clay. Slightly moist.		68-68.67	100	
L ₋₇₀							



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-05A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 11/10/2006 11/10/2006 Boring/Well:MONITORING WELL Date Completed: Depth of Hole (ft): 40.00 Elevation (ft): 38.10 UTM NAD83 Northing (m): 867702.22 Easting (m):761461.54 Gauged Depth to Water (ft): 32.47 Conditions: Asphalt between light poles 057/058 Comments: Sample Interval Screening USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (ft) (%) (ft) (ppm) L₀ -1 -- -2 - **-**3 - -4 - -5 - **-**6 - -7 - **-**8 - -9 └ -10 -11 -12 -13 -14 <u></u>-15 F-16 -17 -18 -19 -20 **-- -21** _ -- -22 - -23 - -24 - -25 - -26 -27 -28 -29 - -30 GM: Light gray (10 YR 7/2) and very pale brown (10 YR 7/4) medium GRAVEL; some medium to coarse sand; some silt, little 30-32.2 100 ⊠ . . ⊠ - -31 - -32 clay. Dry. -33 - -34 34-38 54 GP: Very pale brown medium GRAVEL; some coarse sand; little silt, little yellowish brown (10 YR 5/8) silt; trace clay. Wet. - -35 ⊠ . --- -36 -37 -38 ...⊠ 38-40 GP: Very pale brown, yellowish brown medium to coarse angular GRAVEL; some coarse sand; little silt. Wet. 50 -39 |- -40

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END OF SAMPLING



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: **MW-05B** Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 11/7/2006 11/9/2006 Depth of Hole (ft): 70.00 Date Completed: UTM NAD83 Elevation (ft): 37.85 Northing (m): 867716.60 Easting (m):761458.35 Gauged Depth to Water (ft): 23.35 Conditions: Asphalt between light poles 57/58 Comments: Sample Interval Screening USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) - 0 0-454 CL-ML: Dark yellowish brown (10 YR 4/4) CLAY and SILT, - -1 stiff; trace gravel. Slightly moist ML: Yellowish brown (10 YR 5/8) SILT; little clay, little reddish -2 -3 -4 ML: Strong brown (7.5 YR 5/8) mottled with reddish brown (5 YR 4/4), pinkish gray (5 YR 7/1) SILT; some clay; very stiff, 4-8 89.6 SB-03-06-05-4-8 06-NO-08-DP -5 -6 -8 ML: Alternating, some mottling, of reddish brown, yellowish brown, and white (10 YR 8/1) SILT; some clay (mostly 8-12 83 white-colored material). Very stiff, dry. -9 - -10 -11 -12 12-16 100 CL-ML: Strong brown SILT and CLAY to white CLAY to reddish brown SILT; very stiff, dry. -13 OL: Yellowish brown SILT and CLAY; little black organics, trace gravel. Very stiff, dry. - -14 CL-ML: White CLAY with interbedded reddish brown SILT; -15 - -16 CL: Mottled/striated yellowish brown/reddish brown/white 16-20 100 CLAY; little silt. Stiff, dry. -17 OL: Yellowish brown SILT and CLAY; little black remnant organics; trace fine sand, stiff, dry -18 -19 OL: Yellowish brown SILT; some clay; little fine sand; trace black remnant organics. Dry. -20 100 20 - 24OL: Brownish yellow (10 YR 6/8) SILT; some clay, trace black OL: Dark yellowish brown (10 YR 4/4) to brownish yellow SILT; -21 little clay, little black silt. Stiff, dry. GM: Light gray (10 YR 7/2) to very pale brown (10 YR 7/3) SILT and fine to medium GRAVEL; little fine medium sand -22



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-05B

Log of	Borir	ıg: N	AW-05B				
Depth (ft)	USCS Log		Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
			SILT and fine to medium GRAVEL; little fine medium sand (carbonate sands/gravel.)				BEGIN CARBONATE ZONE
25			GM: Light gray to very pale brown fine to medium GRAVEL and SILT; very brittle; little medium sand, trace clay. Dry. (Carbonates)		24-28	89.6	
26 -							
27 - 28			GM: Light gray/very pale brown fine to medium GRAVEL; some	-	28-32	100	SB-03-06-05-28-32
- 29 -			silt, some medium sand, trace clay. Dry. (carbonates)				
30 31			GM: Very pale brown medium GRAVEL; some silt, some medium sand, little clay. Slightly moist (carbonates)	_			
32			SP: Very pale brown/light gray medium to coarse SAND; some	_	32-36	50	
33 			coarse gravel, little clay, trace silt. Very moist, wet. (carbonates)				
34 - 35							
- 36			GP: Very pale brown medium GRAVEL; some medium to coarse sand, little silt, wet. (Carbonates)	_	36-40	75	
37 38			said, into sai, well (cursonates)				END CARBONATE ZONE
- - 39			GM: Yellowish brown SILT and coarse GRAVEL; some clay; moist.				
			GM: Brownish yellow (10 YR 6/6) medium to coarse GRAVEL and SILT; little clay. Very moist.	-	40-44	50	
41 - 42							
- 43							
44 			CL: Dark yellowish brown (10 YR 4/6) CLAY, some silt, moist.		44-47	100	
45 - 46	:		CL-ML: Light gray (10 YR 7/2) and very pale brown (10 YR 7/3) CLAY and SILT; little fine gravel. Slightly moist, stiff.				
- 47 -	二:::: ::::::::::::::::::::::::::::::::						
48 49			ML: Very pale brown SILT; some fine to medium gravel and clay; slightly moist, stiff.	-	48-51	61	
Ι .			SM: Brownish yellow/very pale brown fine SAND and SILT;	I			



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-05B

Log of	Borir	ıg: N	AW-05B				
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
			SW: Greenish gray (Gley 1 6/1) and some brownish yellow fine SAND; little silt, trace clay. Slightly moist. CL-ML: Brownish yellow/greenish gray CLAY and SILT; little fine sand, trace purplish clay.		52-55.67	100	
54 55 56 57 58 59			SM: Greenish gray/brownish yellow fine SAND and SILT. Moist. CL: Brownish yellow CLAY. Moist. GM: Medium to coarse very pale brown GRAVEL; some medium sand, little silt. Wet. (carbonates) GM: Greenish gray (Gley 1 6/1) and very pale brown SILT, CLAY, and fine GRAVEL. Very stiff. Dry (carbonate).		56-58.5	100	CARBONATE ZONE
60 61			ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; little clay, little fine sand. Slightly moist, fairly stiff.		60-62	100	
62 -			ML: Greenish gray SILT; little fine sand, trace iron oxides. SW: Light yellowish brown (10 YR 6/4) fine SAND; wet.		62-64	100	
63 64 65			SM: Greenish gray SILT and yellowish brown fine SAND; very moist. SW: Greenish gray/light yellowish brown fine SAND; little silt. Very moist.		64-65.67	90	
66 - 67			ML: Yellowish brown SILT; little clay and fine sand. Moist.		66-66.5	100	
68 - 69 - 70			OL: Very dark gray (10 YR 3/1) SILT; little fine sand, trace clay; trace shells. Stiff.		68-69.67	100	
-71							



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-06A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 11/6/2006 11/7/2006 Depth of Hole (ft): 20.00 Date Completed: UTM NAD83 Elevation (ft): 13.53 Northing (m): 868268.25 Easting (m):761468.57 Gauged Depth to Water (ft): 3.60 Conditions: Asphalt between light poles 060/061 Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) - 0 - -2 -3 -4 -5 -6 -8 8-12 83 ML: Strong brown (7.5 YR 5/6) SILT; little reddish silt; trace black gravel, trace clay, trace fine sand. -9 ML: Strong brown/dark reddish brown (5 YR 3/4) SILT; some yellowish brown; trace white clay. Stiff material, fairly dry. - -10 - -11 - -12 12-16 100 CL-ML: Yellowish/reddish SILT and white CLAY; lenses of medium sand, fine gravel at lower end of sample; some black - -13 organics; wet at depth. -14 - -15 - **-**16 16-20 100 CL: Strong brown CLAY; little reddish silt; little fine black CL: Light greenish gray (Gley 2 7/1) CLAY; little reddish mottles of silt; trace fine gravel. - -17 -18 - **-**19 CL-ML: Yellowish brown (10 YR 5/6) CLAY and SILT; little light greenish gray clay -20 END OF SAMPLING

^{_} -21



FORT BUCHANAN **PUERTO RICO**

Geologist: BILL HARVEY Log of Boring: MW-06B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Drill Type: HSA Equipment: Date Started: 11/2/2006 Boring/Well:MONITORING WELL Date Completed: 11/3/2006 Depth of Hole (ft): 67.00 UTM NAD83 Elevation (ft): 13.25 Northing (m): 868277.70 Easting (m):761473.77 Gauged Depth to Water (ft): 8.23 Conditions: Comments: Screening Sample Interval USCS Depth Recovery Depth Remarks/Sample Name Description of Materials VOC Log (%) (ft) (ft) (ppm) 0 0-444 GP: Dark bluish gray fine to coarse GRAVEL; some coarse sand, -1 CL: Dark yellowish brown (10 YR 4/4 CLAY; some mixed gravel, brick (fill). Dry. -2 -3 -4 4-8 42 SB-03-06-06-4-8 CL; Dark yellowish brown CLAY; little dark blue gravel; trace sand. Stiff. Dry. CL-ML: Dark greenish gray (Gley 2 4/1) CLAY and SILT; little -5 yellowish brown sand, moist. Some organics ML: Yellowish brown (10 YR 5/8) SILT, some clay; trace fine sand. Dry. -6 - -7 - -8 8-12 0 NS: NO RECOVERY, HIGH AMOUNT OF WATER IN HOLE -9 -10 - -11 -12 12-16 94 CL-ML: Alternating layers of yellowish brown/reddish brown (5 YR 4/4) SILT with white CLAY; fairly regular intervals; more silty than clay. Trace gravel. Stiff, dry -13 -14 -15 -16 16-20 100 CL-ML: Striated yellowish brown SILT; some red silt, little white clay, trace black silt (old organic matter). -17 - **-**18 -19 -20 31

20-24

GW: Coarse light gray/brown GRAVEL



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-06B

Log of	Borir	ıg: N	MW-06B				
Depth (ft)	USCS Log	_	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
21 22 23	######################################		SM: Yellowish brown (10 YR 5/6) and black fine to medium SAND and SILT. Moist. OL: Yellowish brown/black SILT; little fine sand. CL-ML: Yellowish brown/reddish brown (5 YR 4/4) SILT; some white clay, trace fine sand.				
24 25			NS: NO RECOVERY. SPOON COLLECTED REMAINING CLAY FROM PREVIOUS SAMPLE. COARSE GRAVEL FRAGMENT AT BOTTOM OF SPOON.		24-28	0	
28 29 30	_;		CL-ML: Brownish yellow (10 YR 6/6) CLAY and SILT mottled with reds, blacks, and whites (blacks likely remnant organics). Very stiff.		28-32	100	
31 31			ML: Yellow (10 YR 7/6) SILT, grading to very pale brown SILT,				BEGIN CARBONATE ZONE
32 33			trace fine gravel (carbonates). CL-ML: Very pale brown (10 YR 7/3, 8/2) little black SILT and CLAY; trace fine gravel. GM: Very pale brown fine to coarse GRAVEL and SILT; little		32-36	100	SB-03-06-06-32-36
- 34 - 35	X		clay, trace medium sand (carbonates). Moist.				
- 36	X		GM: Very pale brown fine to medium GRAVEL and SILT; trace clay, trace medium sand. Moist.		36-40	67	
			GM: Very pale brown fine to medium GRAVEL; some silt, some medium sand. Very moist (carbonates).				
					40		
41			GM: Very pale brown fine to medium GRAVEL and SILT; little coarse sand, trace clay. OL: Yellowish brown (10 YR 5/6) SILT; some black silt (organics); little clay.		40-44	71	
42 - 43			GP: Very pale brown medium to coarse GRAVEL; some coarse sand, trace silt. OL: Yellowish brown SILT; some black silt, little clay. GP: Yellowish brown coarse GRAVEL; little silt.				
- 			GM: Yellowish brown to very pale brown fine to coarse GRAVEL and SILT; trace sand and clay, more sand at bottom of		44-45.7	100	
45 -			spoon. Moist (carbonates).				



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-06B

Log of	Bori	ng: N	MW-06B				
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
-46		i					
- 47		1					
-		<u>- </u>					
48 -		1	GM: Very pale brown fine to medium GRAVEL; some silt, trace clay and sand.		48-52	62.5	
-49			GP: Yellowish brown medium angular GRAVEL; little coarse sand, wet.				
50		<u></u>	ML: Very pale brown SILT; some fine to medium sand, trace fine				
- 51			gravel. Moist.				
- 52			CMAN TO THE TOTAL TOWN		52-52.67	100	
-			GM: Yellowish brown to very pale brown GRAVEL and SILT; very moist. ML: Very pale brown SILT; stiff, dry.		32-32.07	100	
53 -			ML: Light gray (10 YR 7/2) to very pale brown SILT; little fine				
54			gravel. Stiff.		54-55.5	100	
- 55							
- 			ML: Light gray SILT; stiff; little/trace medium sand.		56-58	100	
- 57							
- 58			ML: Yellowish brown/light gray SILT; trace clay, stiff.		£0 £0 0£	100	
- 59		1	GM: Light gray SILT and fine GRAVEL/coarse SAND. Moist.		58-58.85	100	
39		<u>- </u>					
60 -		i	GM: Very pale brown (10 YR 7/3) and light gray (10 YR 7/2) medium GRAVEL; some coarse sand and silt. Moist.		60-60.67	100	
61		1	(Carbonates)				
62		<mark>1</mark>	ML: Light gray SILT; some fine gravel; some coarse sand, trace		62-62.85	100	
63			clay. Moist.				
- 64			MI. Light away CH To come medium array		64-64.85	100	
- 65		<u>!</u>	ML: Light gray SILT; some medium gravel. GM: Light greenish gray (Gley 2 7/1) to greenish gray (Gley 2 6/1) SILT and fine GRAVEL; grading to SILT; little gravel.		5. 51.55		
-		<u>- </u>	Moist to dry.				
66 -			ML: Greenish gray SILT; some fine to medium gravel/coarse sand. Dry.		66-67	100	
67		l l	END OF SAMPLING				
-68							



_				110 330 0202		1				
Log of	Borin	ng: N	1W-	07A		Geolog	ist: BII	L HA	RVEY	Ý.
Subcontra	actor: JA	ACA A	ND SI	ERRA	Name of D	riller:EDU	ARDO S	ANTI	AGO	
Equipmen	nt: HOI	LLOW	STEN	1 AUGERS (HSA) 8-in OD				D	rill T	Type: HSA
Date Star	ted: 11	/1/200	6	Date Completed: 11/1/2006	Depth of H	tole (ft): 3	6.00		Borin	ng/Well:MONITORING WELL
Elevation	(ft): 9.	17		Northing (m): 868789.89 Easting	(m):761817.	53 UT	M NAD8	33	Gaug	ged Depth to Water (ft): 4.56
Conditi	ons: A	sphalt	betw	een light poles 064/065						
Comme	nts:									
Depth	USCS	Sample Interval		Description of Materials		Screening VOC	Depth	Reco	overy	Remarks/Sample Name
(ft)	Log	Sa		Description of Materials		(ppm)	(ft)	(%	%)	
- 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 21 22 23 24 25 20 21 22 23 24 25 27 28 29 21 29 21 20 21 22 23 24 25 26 27 28 29 29 21 29 21 20 21 25 26 27 28 29 29 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 21 29 30 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31 31			Silt. S CL: S mediu SW: S CL: S trace CL: E blue o CL: E moist CL: E trace	trong brown with black mottles CLAY; little fum sand. Slightly moist. Stiff. Strong brown fine SAND; trace silt/clay. Moist trong brown CLAY; little black striations, som silt. Stiff. Brownish yellow (10 YR 6/6) CLAY; trace silt, blay. Brownish yellow CLAY; intervals of black fine	ine to t. te fine sand; trace light SAND;		26-30 32-36	62.5		



	oring: MW -		Π	Geologist: BILL HARVEY me of Driller: FDUARDO SANTIAGO				
	or: JACA AND SI		Name of Dr	Name of Driller:EDUARDO SANTIAGO				
Equipment:	HOLLOW STEN	M AUGERS (HSA) 8-in OD				Drill	Type: HSA	
Date Started:	10/30/2006	Date Completed: 10/31/2006	Depth of Ho	ole (ft): 7	3.00	Bo	ring/Well:MONITORING WELL	
Elevation (ft): 9.24	Northing (m): 868796.37 Easting	(m):761825.3	39 UT	M NAD8	3 Ga	uged Depth to Water (ft): 4.59	
Conditions	: Asphalt betw	een light poles 063/064						
Comments:								
	Sample Interval	Description of Materials		VOC (ppm)	Depth (ft)	Recovery	Remarks/Sample Name	
- 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 - 48								



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-07B

		-0					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	VOC (ppm)	Depth (ft)	Recovery (%)	Remarks/Sample Name
48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 67 68			SP: Very pale brown (10 YR 7/3) fine to medium SAND; wet. GP: Very pale brown (10 YR 8/3) coarse GRAVEL; some coarse sand, little silt. Very moist. (carbonate). GM: Yellowish brown (10 YR 5/8) SILT; some fine-medium gravel, little clay, stiff. Slightly moist. ML: Brownish yellow (10 YR 6/6) SILT; mottled with light bluish gray (Gley 2 7/1) silt; little clay; trace sand. Slightly moist, stiff. SM: Very pale brown fine to medium SAND and SILT; little fine gravel. Moist.		63-66	100	



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-08A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 12/7/2006 12/7/2006 Boring/Well:MONITORING WELL Date Completed: Depth of Hole (ft): 28.00 Elevation (ft): 19.92 UTM NAD83 Northing (m): 868068.71 Easting (m):762036.57 Gauged Depth to Water (ft): 13.03 Conditions: Asphalt Parking Lot outside DPW Comments: Sample Interval Screening Recovery USCS Depth Depth Remarks/Sample Name Description of Materials VOC Log (ft) (%) (ft) (ppm) **⊢** 0 - -1 - **-**2 - **-**3 - -4 - -5 - **-**6 - -7 **--8** - -9 **--10 -- -11** -- -12 - -13 **-- -14** - -15 - -16 - -17 **-- -18** -- -19 - -20 20-24 67 CL: Bluish gray (Gley 2 6/1) CLAY; some white medium GRAVEL; little fine sand. Moderate plasticity. - -21 CL: Bluish gray and yellowish brown (10 YR 5/8), little red CLAY; intervals (seams) of fine sand; more sand at depth. Very -- -22 moist, little stiffness. - -23 - -24 24-48 69 CL: Bluish gray CLAY; little fine sand; moist. -25 SP: Dark grayish brown (10 YR 4/2) fine SAND; coarse white gravel at top; wet. - -26 SM: Bluish gray/yellowish brown fine SAND and SILT; trace \ clay, very moist - -27 SP: Grayish brown (10 YR 5/2) fine SAND; trace silt, wet.

END OF SAMPLING

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FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-08B Subcontractor: JACA AND SIERRA Name of Driller: EDUARDO SANTIAGO Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 12/4/2006 12/6/2006 Depth of Hole (ft): 67.00 Date Completed: UTM NAD83 Elevation (ft): 19.66 Northing (m): 868073.87 Easting (m):762044.56 Gauged Depth to Water (ft):15.05 Conditions: Asphalt lot outside DPW area Comments: Sample Interval Screening USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC Log (%) (ft) (ft) (ppm) - 0 52 0-4FILL: Asphalt GP: White, very pale brown (10 YR 8/2) coarse GRAVEL; trace -1 GC: Dark yellowish brown (10 YR 4/4) CLAY and coarse white GRAVEL; dry. -2 -3 -4 4-8 25 CL: Dark yellowish brown CLAY; little fine gravel; little silt. (SAMPLE CATCHER BROKE, LIMITED RECOVERY) -5 -6 - -8 8-12 8.3 CL: Dark yellowish brown CLAY SC: Greenish gray (Gley 2 5/1) and dark yellowish brown CLAY and fine SAND; slightly moist. (VERY LIMITED RECOVERY; NO CHEMICAL SAMPLE POSSIBLE) -9 -10 - -11 -12 SC: Greenish gray and dark yellowish brown CLAY and fine SAND; slightly moist. 100 SB-03-06-08-12-16 12-16 06-DE-04-DP OH: Very dark bluish gray (Gley 2 3/1) CLAY; little brown/black organics. Very high plasticity, low stiffness. -13 -14 -15 -16 16-20 100 SB-03-06-08-16-20 OH: Greenish gray and dark yellowish brown CLAY; little fine sand; trace gravel. Moist. -17 - -18 SC: Greenish gray/dark yellowish brown CLAY and fine SAND (more sand at depth). Very moist. - -19 -20 87.5 SC: Bluish gray (Gley 2 6/1) and dark yellowish brown fine 20-24



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-08B

Log of	<u>Borir</u>	<u>1g:</u> N	/W-08B				
Donth	USCS	ple	Description of Materials	Screening	Depth	Recovery	D 1 /2
Depth (ft)	USCS Log	Sam	Description of Materials	VOC (ppm)	(ft)	(%)	Remarks/Sample Name
21	(::/:: <u>/</u> :		SAND and CLAY; moist.				
- 22		•	SW: Bluish gray fine SAND; dark yellowish brown sand at depth; trace clay. Wet.				
- 23		•	CL: Dark yellowish brown and bluish gray CLAY; some fine sand, trace with fine sand. Moist, fairly stiff.				
- 24			CL. Dheish arms CLAV, links for any days in		24-28	100	
- 25			CL: Bluish gray CLAY; little fine sand, moist.		2120	100	
- 26			SC: Bluish gray CLAY and fine SAND; wet. SW: Dark yellowish brown fine SAND to gray fine SAND; trace	-			
- 27			clay, wet. CL: Bluish gray/dark yellowish brown CLAY; some fine sand, trace white fine sand. Very moist.	-			
- 28			CL: Bluish gray/yellowish brown (10 YR 5/4, 5/6) CLAY; some	-	28-32	100	
- 29			fine sand, more sand at depth. Trace reddish fine sand, moist.				
30	H::		CL-ML: Brownish yellow (10 YR 6/8) CLAY and SILT; some black/brown organics, trace coarse sand/fine gravel. Slightly moist.				
31	 = : = =						
32 	#::		CL: Brownish yellow, some bluish gray, gray CLAY; some silt, little plasticity.		32-36	100	
33 -			CL-ML: Dark yellowish brown CLAY and SILT; some black				
34 -	工::		organics, little medium gravel (white carbonate). CL: Brownish yellow/very pale brown (10 YR 7/4) CLAY; some medium white carbonate gravel; trace silt. Very moist				
35 -			GC: Brownish yellow medium GRAVEL; little clay, trace silt.				BEGIN CARBONATE ZONE
36 -			Very moist. GC: Dark grayish brown (10 YR 4/2) medium to coarse GRAVEL; some coarse sand, some clay. Wet.	-	36-39.67	47.6	
37 -			CL: Yellowish brown CLAY; trace black organics, trace fine sand. GP: Very pale brown (10 YR 7/4) medium GRAVEL; some				
38			coarse gravel, little clay. Wet.				
39							
40		1	GP: Very pale brown (10 YR 7/3) medium to coarse GRAVEL and coarse SAND; little silt/clay; carbonates; very moist to wet.		40-44	54	
41							
42							
			GM: Brown (10 YR 5/3) medium to coarse GRAVEL and coarse SAND; some silt, trace clay. Very wet. (SAMPLE CATCHER BROKE; MAY HAVE LOST SOME SAND).		44-48	33	
+							



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-08B

Depth Company Description of Materials Serecting Depth Recovery (%) Remarks/Sample Description of Materials Description of Materials Depth Recovery (%) Remarks/Sample Description of Materials Depth Recovery (%) Remarks/Sample Description of Materials Description of Materials Depth Recovery (%) Remarks/Sample Description of Materials Description of Mat	of Borin	ing	3: N	IW-08B			
- 46	USCS	s ldm	erval	Description of Materials	Depth	Recovery	Remarks/Sample Name
- 46	Log	Saı	Int	•	(ft)	(%)	Kemarks/Sample Plante
- 48							
- 48		⊠ <mark></mark>					
-48		· •					
sand. Slightly moist to moist. Solid State	FA FA	<u></u>	-	GM: Very pale brown/light gray (10 YR 7/2) medium GRAVEL	48-50.67	87.5	
-50		· · ⊠					
-51		⊠ <mark></mark>					
-51		 ⊠					
GM: Very pale brown/light greenish gray (Gley 1 7/1) medium GRAVEL and SILT; slightly moist. GM: Medium GRAVEL and SILT; slightly moist. GM:		⊠ · ·					
SM: Light greenish gray/yellowish brown SILT and fine SAND; slightly moist. GM: Medium GRAVEL and SILT (shells). ML: Greenish gray (Gley 2 6/1) and yellowish brown SILT; trace fine gravel, stiff. GM: Very pale brown coarse GRAVEL and SILT. ML: Very pale brown SILT; some fine to medium gravel/coarse sand; trace clay; little moisture. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; slightly moist. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; slightly moist. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist.				GM: Very pale brown/light greenish gray (Gley 1 7/1) medium	52-55.67	100	
GM: Medium GRAVEL and SILT (shells). ML: Greenish gray (Gley 2 6/1) and yellowish brown SILT; trace fine gravel, stiff. GM: Very pale brown SILT; some fine to medium gravel/coarse sand; trace clay; little moisture. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist.				SM: Light greenish gray/yellowish brown SILT and fine SAND;			
fine gravel, stiff: GM: Very pale brown coarse GRAVEL and SILT. ML: Very pale brown SILT; some fine to medium gravel/coarse sand; trace clay; little moisture. 56-57.75 100 GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. ML: Very pale brown SILT; some gravel. Dry. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL some coarse sand; slightly moist. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; slightly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist.				GM: Medium GRAVEL and SILT (shells).			
GM: Very pale brown SILT; some fine to medium gravel/coarse sand; trace clay; little moisture. GM: Very pale brown SILT; some fine to medium gravel/coarse sand; trace clay; little moisture. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. ML: Very pale brown SILT; some gravel. Dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray/sellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray SILT and fine to medium GRAVEL; some coarse sand; slightly moist.							
ML: Very pale brown SILT; some fine to medium gravel/coarse sand; trace clay; little moisture. -58 -60 -60 -61 -62 -63 -63 -64 -64 -64 -65 -68 -68 -68 -68 -68 -68 -68				GM: Very pale brown coarse GRAVEL and SILT			
57585960 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □			_		56-57.75	100	
GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. ML: Very pale brown SILT; some gravel. Dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/some coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist.				sand; trace clay; little moisture.			
GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. ML: Very pale brown SILT; some gravel. Dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/some coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist.							
GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. ML: Very pale brown SILT; some gravel. Dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/some coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist.							
GM: Greenish gray (Gley 1 6/1) SILT and fine to medium GRAVEL; some coarse sand; slightly moist. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray SILT and fine to medium GRAVEL; some coarse sand; slightly moist.							
GRAVEL; some coarse sand; slightly moist. ML: Very pale brown SILT; some gravel. Dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray SILT and fine to medium GRAVEL; some coarse sand; slightly moist.		<mark>∐</mark> ⊠		GM: Greenish gray (Gley 1 6/1) SILT and fine to medium	60-60.67	100	
GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some coarse sand; slightly moist.				GRAVEL; some coarse sand; slightly moist.			
GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry. GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL; some GM: Greenish gray SILT and fine to medium GRAVEL; some coarse sand; slightly moist.							
-63				GM: Greenish gray/yellowish brown (10 YR 5/8) SILT and fine to medium GRAVEL/coarse sand; stiff, mostly dry.	62-63	100	
GM: Greenish gray SILT and fine to medium GRAVEL; some coarse sand; slightly moist.		⊠					
coarse sand; slightly moist.				GM: Greenish gray SILT and fine to medium GRAVEL: some	64-65	100	
		⊠ · ·		coarse sand; slightly moist.			
GM: Light greenish gray SILT and medium GRAVEL; some		×		GM: Light greenish gray SILT and medium GRAVEL; some coarse sand. Slightly moist.	66-66.5	100	
END OF SAMPLING		M.					
68							



				10-330-0202		T CENTO RICO						
Log of Bo	oring	g: N	1W-	09A	T	Geologist: BILL HARVEY						
Subcontracto	or: JAC	CA Al	ND SI	ERRA	Name of Driller:EDUARDO SANTIAGO							
Equipment:	SPLIT	ΓSPC	OON, 4	I', 150 LB HAMMER				D	rill T	ype: HSA	Λ	
Date Started:	: 5/10)/2007	7	Date Completed: 5/11/2007	Depth of H	Depth of Hole (ft): 46.00 Boring/Well:MONITO						
Elevation (ft	t): 39.1	12		Northing (m): 867399.53 Easting	(m):761776.	50 U	TM NAD8	33	Gau	ged Deptl	n to Water (ft): 26.22	
Conditions	s: Gra	ISS										
Comments:			nanan,	, south of DPW yard			ı					
Dopui	SCS og	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name	
F ⁰				IL: Organics underlain by dark brown (10 YR ILT; trace gravel. Dry.	3/3) CLAY		0-4	75		8/12		
1 - ⊠		ľ	CL: Y	Yellowish brown (10 YR 5/8) and light gray (1) (7; some silt; soft, dry.	0 YR 7/2)					14/12		
2			GM: I	Dark yellowish brown (10 YR 3/6) and black t ILT, dry.	ine GRAVEL					22/12		
3			ML: Y SILT;	Yellowish brown, little black, trace yellowish r trace clay and fine gravel. Dry.	red (5 YR 4/6)					27/12		
-4				Yellowish brown SILT; little fine black gravel	; little		4-8	75		20/12		
5	· · · ·		CL-M	vish red silt. Dry. IL: Yellowish brown SILT; some yellowish re	d silt					32/12		
6		}	CL-M	persed with white clay; dry, stiff. (L: Yellowish red SILT with striations of whit yellowish brown silt; very stiff, dry.	e CLAY;					47/12		
7	_ : - 		,							42/12		
8			CL: W	White CLAY; striations of reddish brown (5 Y	R 5/4) silt and		8-12	85		9/12		
9				ravel, stiff; medium plasticity; dry.	, , , , , , , ,					14/12		
10										19/12		
11										24/12		
12		Į	CL: W	White CLAY; some silt. Medium stiffness, dry	, , , , , , , , , , , , , , , , , , ,		12-16	100		9/12		
13	• • • • • • • • • • • • • • • • • •		SM: V some	White fine SAND underlain by yellowish red f silt, slightly moist.	ine SAND;					14/12		
14				IL: White CLAY; medium stiffness, medium pyellowish red silt, dry.	olasticity;					22/12		
15				Yellowish brown, yellowish red and light gray trace fine sand. Stiff, dry.	SILT; little					24/12		
16			ML: Y	Yellowish brown SILT; little fine sand, trace c	lay. Dry.		16-20	63		10/12		
-17										16/12		
18			CL-M	IL: Yellowish brown SILT and CLAY; some l slightly plastic; medium stiffness, dry.	ight gray					22/12		
19	\pm									23/12		
20				rownish yellow, light greenish gray (Gley 2.7)			20-24	83		7/12		
21				silt, little black organics (silt); fairly soft, med city; slightly moist.	ıum					12/12		
22										15/12		
23										18/12		
T 24					ı]				



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-09A

Log of	Born	ng: N	AW-09A					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
⊢- <u>-</u> 24	2 2 2					L =0	1 10/12	
-			CL: Brownish yellow, light greenish gray, black CLAY; little silt, medium plasticity, fairly stiff. Slightly moist.		24-28	79	10/12	
25		2	GC: Brownish yellow, some very pale brown (10 YR 7/4) fine to				14/12	
			coarse GRAVEL and CLAY; little silt, very moist to wet. (START CARBONATE ZONE)				16/12	
27		t						
27 -							12/12	
28	· ×/ / ·	-	CM: V		28-32	100	14/12	
-			GM: Very pale brown, trace brown (10 YR 4/3) fine to coarse GRAVEL and SILT; little clay; stiff, slightly moist.		20 32	100	1 12	
29							58/12	
30							75/12	
+							73/12	
-31			CL: Yellow (2.5 Y 7/6) CLAY; little fine gravel, little silt; low plasticity, stiff, mostly dry.				100/12	
32	Ш		ML: Pale yellow (2.5 Y 7/3) SILT; little fine gravel, very stiff, dry.		32-36	100	27/12	
+			ML: Greenish gray (Gley 2 6/1), yellowish brown SILT; some		32-30	100	2//12	
33			fine sand, trace clay, dense, dry.				40/12	
-34							48/12	
+							46/12	
35			ML: Greenish gray and yellowish brown SILT; some clay, little fine gravel; stiff, dry.				50/12	
36					26.27	100	100/12	
-		•	SM: Brownish yellow (10 YR 6/6) SILT; some fine gravel/coarse sand, dense; moist. Evidence of carbonates.		36-37	100	100/12	
37								
38								
-			GM: Very pale brown (10 YR 8/2) coarse SAND and fine angular GRAVEL; little silt, wet.		38-40	100	35/12	
 39							100/12	
-40								
-40			GM: Very pale brown (10 YR 8/4, 7/4) coarse SAND and fine GRAVEL; some silt, wet.					
41			Old (VEE), some site, wet.					
40								
42			SM: Very pale brown (10 YR 8/2) and light greenish gray (Gley 1 7/1) SILT and coarse SAND; little fine gravel, moist.		42-44.33	100	69/12	
43			1 //1) SIL1 and coarse SAND, fittle time graver, moist.				100/16	
+			ML: Light greenish gray SILT; trace fine gravel. Slightly moist.				100/10	
-44								
45			END OF SAMPLING					
+								
[∟] -46		1		1		I	l	



				+10-330-0202		T CERTO RICO						
Log of	Borir	ıg: N	IW-	09B	T	Geologist: BILL HARVEY						
Subcontra	ctor: JA	CA A	ND SI	ERRA	Name of Driller:EDUARDO SANTIAGO							
Equipmen	t: SPL	IT SP	OON, 4	4', 150 LB HAMMER				D	rill T	ype: HSA	Λ	
Date Starte	ed: 5/8	3/2007	,	Date Completed: 5/10/2007	Depth of H	Depth of Hole (ft): 68.00 Boring/Well:MONITOR						
Elevation	(ft): 38	3.90		Northing (m): 867399.57 Easting	(m):761765	01 U	TM NAD8	33	Gau	ged Deptl	n to Water (ft): 16.35	
Conditio	ons: G	rass										
Commen	ıts:		hanan	, south of DPW complex								
Depth (ft)	USCS Log	Sample Interval		Description of Materials	1	VOC (ppm)	Depth (ft)	Reco	overy %)	# Blows per # Inches	Remarks/Sample Name	
	工::			IL: Organics underlain by dark brown (10 YR ILT; trace gravel. Dry.	3/3) CLAY		0-4	75		8/12		
1			CL: Y	Yellowish brown (10 YR 5/8) and light gray (1 Y; some silt; soft, dry.	0 YR 7/2)					14/12		
2			GM: I	Dark yellowish brown (10 YR 3/6) and black ILT, dry.	fine GRAVEL					22/12		
3			ML:	Yellowish brown, little black, trace yellowish trace clay and fine gravel. Dry.	red (5 YR 4/6)					27/12		
4				Yellowish brown SILT; little fine black gravel	; little		4-8	75		20/12		
- 5			CL-M	wish red silt. Dry. IL: Yellowish brown SILT; some yellowish re	ed silt					32/12		
- 6			CL-M	persed with white clay; dry, stiff. IL: Yellowish red SILT with striations of whit yellowish brown silt; very stiff, dry.						47/12		
- 7	 		nuc y	vitowish otown shit, very shirt, dry.						42/12		
8	工::		CL: V	White CLAY; striations of reddish brown (5 Y	R 5/4) silt and		8-12	85		9/12		
9				ravel, stiff; medium plasticity; dry.	ic 5/ 1) siic uiiu					14/12		
10										19/12		
										24/12		
- 12			CI · V	White CLAY; some silt. Medium stiffness, dry			12-16	100		9/12		
- 13			SM: V	White fine SAND underlain by yellowish red silt, slightly moist.						14/12		
- 14	_ : _ _ : :			IL: White CLAY; medium stiffness, medium yellowish red silt, dry.	plasticity;					22/12		
- 15				Yellowish brown, yellowish red and light gray trace fine sand. Stiff, dry.	SILT; little					24/12		
- 16			MI·	Yellowish brown SILT; little fine sand, trace of	day Dry		16-20	63		10/12		
- 17			WIL.	renowish orown Sill 1, mate fine sand, trace c	May. Diy.					16/12		
- 18	<u> </u>			IL: Yellowish brown SILT and CLAY; some	light gray					22/12		
- 19	工:: :: 工		clay,	slightly plastic; medium stiffness, dry.						23/12		
- 20	工::		CI · D	Brownish yellow, light greenish gray (Gley 2 7	//1) CLAV:		20-24	83		7/12		
- 21			some	silt, little black organics (silt); fairly soft, medicity; slightly moist.						12/12		
- 22										15/12		
- 23										18/12		
24										10/12		



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-09B

Log of	Borir	ıg: N	AW-09B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
24			CL: Brownish yellow, light greenish gray, black CLAY; little silt, medium plasticity, fairly stiff. Slightly moist.	1	24-28	79	10/12	
25			GC: Brownish yellow, some very pale brown (10 YR 7/4) fine to				14/12	
26			coarse GRAVEL and CLAY; little silt, very moist to wet. (START CARBONATE ZONE)				16/12	
27							12/12	
- 			GM: Very pale brown, trace brown (10 YR 4/3) fine to coarse		28-32	100	14/12	
- 29			GRAVEL and SILT; little clay; stiff, slightly moist.				58/12	
30							75/12	
- 31			CL: Yellow (2.5 Y 7/6) CLAY; little fine gravel, little silt; low plasticity, stiff, mostly dry.				100/12	
- 32			ML: Pale yellow (2.5 Y 7/3) SILT; little fine gravel, very stiff, dry.		32-36	100	27/12	
- 33			ML: Greenish gray (Gley 2 6/1), yellowish brown SILT; some fine sand, trace clay; dense, dry.		32 30	100	40/12	
- 34								
- 35			ML: Greenish gray and yellowish brown SILT; some clay, little				48/12	
36			fine gravel; stiff, dry.				50/12	
37			ML: Greenish gray and yellowish brown SILT; some clay, some coarse sand, dry.	ł	36-37	100	100/12	
-			GP: Very pale brown coarse SAND and fine GRAVEL; little silt, moist.					
38 -			GP: Very pale brown coarse SAND and fine GRAVEL; little silt, wet.		38-39	100	100/12	
- -39								
40 -			GM: Very pale brown (10 YR 7/3) and pale brown (10 YR 6/3) fine GRAVEL, SILT, and coarse SAND; little yellowish brown	1	40-42.5	100	84/12	
41 -			gravel and silt, dense; slightly moist.				100/18	
42 -								
43								
-44			GM: Very pale brown (10 YR 8/2, 8/3) SILT and fine GRAVEL;	1	44-44.83	100	100/10	
45			some coarse sand, moist to wet.					
-46			GM: Very pale brown SILT and fine GRAVEL; some coarse		46-46.83	100	100/10	
47			sand, wet.					
48			GM: Gray (10 YR 6/1) SILT and fine to medium GRAVEL;	ļ	48-49.83	100	68/12	
49			dense, slightly moist. SM: Light Gray (10 YR 7/2) SILT and fine SAND; some fine				100/10	
50			gravel, dense, moist. GM: Pale brown SILT, coarse SAND, and fine GRAVEL; dense,		50-50.92	100	100/11	
- 51			slightly moist.					
- 52			M. Divis		52-53.83	100	35/12	
- 			ML: Bluish gray, dark bluish gray (Gley 2 5/1, 4/1) SILT with shells, very dense, stiff. Dry.		32-33.83	100	33/12	
1 55				ı	I	I	I	I



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-09B

205	Dom	15. 1	1111-02 D					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
† _,							100/10	
54 -			SM: Bluish gray coarse SAND; some silt with shells, little fine gravel. Moist.]	54-54.92	100	100/11	
55			OL: Bluish gray SILT; little shells and fine sand. Stiff, slightly moist.					
56			GW: Bluish gray coarse GRAVEL; little silt, wet.	-	56-56.67	100	100/8	
- 57			on: Saist gar, course out 1.22, and on, we					
- 58								
56			GP: Bluish gray fine SAND and fine GRAVEL; little silt, wet.]	58-59.75	100	52/12	
59 -							100/9	
-60			SM: Bluish gray SILT and coarse SAND; some fine gravel,	-	60-61	100	100/12	
61			moist.					
- 62								
-			SM: Bluish gray coarse SAND; some silt, little fine to medium gravel, very moist.		62-63	100	100/12	
63 -								
-64			SP: Light greenish gray, light bluish gray (Gley 2 7/1) coarse		64-65	100	100/12	
65			SAND and medium angular GRAVEL; little silt, wet.					
- 					66.67	100	100/12	
67			ML: Light greenish gray SILT; little fine to coarse sand, trace fine gravel, slightly moist.		66-67	100	100/12	
-			END OF SAMPLING]				
[∟] -68					l	l	l	



_				F1U-336-62U2		1		1 (101	
Log of Boring: MW-10A Geologist: BILL HARVEY											
Subcontra	actor: JA	ACA A	ND SI	ERRA	Name of Di	riller:EDU	JARDO S	ANTI	AGO		
Equipme	nt: SPL	IT SP	OON, 4	', 150 LB HAMMER				D	rill T	ype: HSA	Λ
Date Star	ted: 4/	26/200	17	Date Completed: 4/26/2007	Depth of Ho	Depth of Hole (ft): 40.00 Boring/Well:MONITO					
Elevation	(ft): 29	9.48		Northing (m): 867936.54 Easting	(m):761748.4	49 U	TM NAD8	3	Gaug	ged Deptl	h to Water (ft): 25.29
Conditi	ons: A	sphalt	t								
Comme	nts:	Buc	hanan	on north side of DPW complex							
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)		overy %)	# Blows per # Inches	Remarks/Sample Name
F 0	<u>:- :- :-</u>			Asphalt			0-4	42		15/12	
1 -	///		coarse	Very dark gray (7.5 YR 3/1) to bluish gray (Gle SAMD; some silt, some fine gravel, dry.	//					18/12	
2 -				lack (10 YR 2/1) and yellowish brown (10 YR 2); trace medium gravel.						15/12	
3 -			fine g	ellowish brown CLAY; dense, medium plastic ravel.	city; trace					18/12	
4 -	//// 		CL: D	ark yellowish brown (10 YR 3/4) CLAY; medity, trace fine gravel. Slightly moist.	lium		4-8	33		11/12	
5 -	···· 2		GW:	Yellow (10 YR 7/6) coarse, subangular GRAV im sand and trace clay. Wet.						21/12	
										32/12	
- -7										40/12	
				Yellow coarse GRAVEL; little clay, trace fine			8-12	33		16/12	
9 -			CL: B CLAY Dry.	rownish yellow (10 YR 6/6) to strong brown (7; dense, medium plasticity; little silt, trace me	(7.5 YR 4/6) edium sand.					16/12	
10 -			Diy.							25/12	
11 -										27/12	
12 -	-:		CL-M	L: Alternating/mottled coloring: yellowish revish brown (10 YR 5/6) SILT and white CLA	d (5 YR 4/6),		12-16	100		14/12	
13 -			plastic	eity, very stiff; trace fine sand, dry.	i , incurum					28/12	
14 -	王::									41/12	
15 -	三: 工 十:-									42/12	
16 -			UNK	NOWN: NO RECOVERY			16-20	0		17/12	
17 -										21/12	
18 -										30/12	
19 -										39/12	
20 -				L: Yellowish red (5 YR 4/6) SILT and yellow R 5/6) CLAY; (little wet fine gravel/coarse say			20-24	100		17/12	
21 -			Stiff.	/hite, very pale brown (10 YR 8/2) and brown	/					23/12	
22 -			(10 Y	R 6/6) CLAY; some silt, mottled with reds and sics); stiff, dry.						28/12	
23 -										33/12	
24 -				fellowish brown to brown CLAY; some silt, bluery fine sand at depth; medium stiffness, slight			24-28	100		13/12	
25 -			Dry.	ory rine sand at deput, medium stiffness, sligi	n piasticity.					23/12	
26 -										31/12	
27											



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-10A

Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
- 28 - 29 - 30 - 31			CL-ML: Yellowish brown CLAY and black SILT; very stiff, slightly plastic, trace medium sand. Dry. ML: Dark yellowish brown (10 YR 4/6) with black striations SILT; some clay, low plasticitiy; dense.		28-32 30-34	100	40/12 15/12 31/12 12/12	
			CL-ML: Light brownish gray (10 YR 6/2) CLAY and SILT; little fine gravel; medium plasticity, slightly moist. GM: Very pale brown (10 YR 7/4) SILT and fine to medium GRAVEL; some clay, moist.		34-38	63	21/12 22/12 24/12 15/12	BEGIN CARBONATE ZONE
- 35 - 36 - 37			GP: Very pale brown (10 YR 8/3) medium GRAVEL; some coarse sand, little silt. Wet.		34-36	03	8/12 7/12 5/12	
			GP: Very pale brown coarse SAND and medium GRAVEL; little silt, more silt at depth. Wet.		38-40	100	9/12	



				+10-330-0202		1							
Log of	Borir	ng: N	1W-	10B	Geologist: BILL HARVEY								
Subcontra	ctor: JA	ACA A	ND SI	ERRA	Name of Driller:EDUARDO SANTIAGO								
Equipmen	t: SPL	IT SPO	OON, 4	I', 150 LB HAMMER				D	rill T	ype: HSA	Λ		
Date Starte	ed: 4/2	24/200	7	Date Completed: 4/25/2007	Depth of Hole (ft): 55.00					Boring/Well:MONITORING WELL			
Elevation	(ft): 29	9.32		Northing (m): 867937.12 Easting	(m):761760.	.62 U	TM NAD8	33	Gaug	ged Deptl	n to Water (ft): 25.02		
Conditio	ons: A	sphalt											
Commen	its:	Bucl	hanan	, on north side of DPW complex									
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)		overy %)	# Blows per # Inches	Remarks/Sample Name		
[°]			FILL:	Asphalt			0-4	42		15/12			
 -1				Very dark gray (7.5 YR 3/1) to bluish gray (Gle SAMD; some silt, some fine gravel, dry.	ey 2 6/1)					18/12			
			SANI	lack (10 YR 2/1) and yellowish brown (10 YR D; trace medium gravel.						15/12			
- -3			CL: Y fine g	'ellowish brown CLAY; dense, medium plastic ravel.	city; trace					18/12			
- -4	·//	-	CL: D	Park yellowish brown (10 YR 3/4) CLAY; med	lium		4-8	33		11/12			
5 -			GW:	city, trace fine gravel. Slightly moist. Yellow (10 YR 7/6) coarse, subangular GRAV um sand and trace clay. Wet.	EL; trace					21/12			
- -6			mean	ini sand and trace cray. Wet.						32/12			
-7	()									40/12			
8 -			GW:	Yellow coarse GRAVEL; little clay, trace fine	sand.		8-12	33		16/12			
9			CLAY	rownish yellow (10 YR 6/6) to strong brown (7; dense, medium plasticity; little silt, trace medium plasticity)						16/12			
- -10			Dry.							25/12			
										27/12			
12 -	- :	-	CL-M	IL: Alternating/mottled coloring: yellowish re vish brown (10 YR 5/6) SILT and white CLA	d (5 YR 4/6),		12-16	100		14/12			
13 -			plastic	city, very stiff; trace fine sand, dry.	r; medium					28/12			
14 -	Ξ:									41/12			
15 -	$\Xi : \Xi$									42/12			
16 -			UNK	NOWN: NO RECOVERY			16-20	0		17/12			
17 -										21/12			
18 -										30/12			
19 -										39/12			
20 -				IL: Yellowish red (5 YR 4/6) SILT and yellow			20-24	100		17/12			
21 -			Stiff.	R 5/6) CLAY; (little wet fine gravel/coarse sar White, very pale brown (10 YR 8/2) and brown	/					23/12			
			(10 Y	R 6/6) CLAY; some silt, mottled with reds and nics); stiff, dry.						28/12			
23										33/12			
24 -				rellowish brown to brown CLAY; some silt, bl			24-28	100		13/12			
- -2 5			little v Dry.	very fine sand at depth; medium stiffness, sligh	ii piasticity.					23/12			
26										31/12			
27													



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-10B

Log of	Borir	ıg: N	/IW-10B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
			CL-ML: Yellowish brown CLAY and black SILT; very stiff, slightly plastic, trace medium sand. Dry.		28-32	100	40/12 15/12 31/12	
30 31 32			ML: Yellow (10 YR 7/6) SILT; some clay and black silty organics; trace medium sand. Dry. CL-ML: Yellow with black striations SILT and CLAY; medium		32-36	100	42/12 44/12 13/12	
33 34 35	H::H H::H H::H		density and slightly plastic. Dry.				23/12 26/12 23/12	
		,	CL-ML: Brownish yellow CLAY and SILT; some fine sand, moist. ML: Yellow, brownish yellow SILT; trace clay and fine sand, stiffening to bottom. Moist.		36-40	100	11/12 14/12 18/12	BEGIN CARBONATE ZONE
39 40 41			CL-ML: Brownish yellow to yellow SILT and CLAY; stiff; trace of fine white gravel and black organics. Slightly moist.		40-44	100	20/12	
	= :		CL: Brownish yellow CLAY; medium plasticity; soft; some silt, trace fine gravel, becoming some fine gravel at depth. Slightly moist. ML: Yellowish brown SILT; some fine sand, little subangular		44-48	100	30/12	
45 46 47			gravel; moist. GM: Grayish brown (10 YR 5/2) to pale brown (10 YR 6/3) to light gray (10 YR 7/2) medium GRAVEL, coarse SAND, and SILT; very moist, drying some at depth.				36/12 49/12 85/12	
48 49 50 51			GM: Light gray, white fine to coarse GRAVEL and SILT; some coarse sand. Very dense, mostly dry.		48-51	100	50 100/24	
- 52 - 53 - 54			ML: Greenish gray (Gley 1 5/1) and yellowish brown (10 YR 5/6) SILT; trace medium sand/fine gravel; very stiff, dry.		52-55	100		
└55			END OF SAMPLING	l	I	I	I	



				+10 330 0202		T CERTO RICO						
Log of	Borir	ng: N	ΛW-	11A		Geologist: BILL HARVEY						
Subcontra	ctor: JA	ACA A	ND SI	ERRA	Name of D	riller:EDU	JARDO S	ANTI	AGO			
Equipmen	nt: SPL	IT SP	OON,	4', 150 LB HAMMER				D	rill T	Type: HSA	A	
Date Start	ted: 5/	15/200	7	Date Completed: 5/15/2007	Depth of H	Depth of Hole (ft): 30.00 Boring/Well:MONIT				MONITORING WELL		
Elevation	(ft): 11	1.93		Northing (m): 868463.45 Easting	(m):762208.	24 U'	TM NAD8	3	Gau	ged Deptl	h to Water (ft): 7.65	
Condition	ons: G	rass										
Commer	nts:	Buc	hanan	, near El Toro Creek								
Depth (ft)	USCS Log	Sample Interval		Description of Materials	-	Screening VOC (ppm)	Depth (ft)	Reco	wery %)	# Blows per # Inches	Remarks/Sample Name	
L _o				Y LOAM: Organics			0-4	63		6/12		
1 -			browi	Oark yellowish brown (10 YR 4/4) CLAY to da n (10 YR 4/2) clay, little silt; little fine to medi	ark grayish um gravel,					11/12		
2			dry.							23/12		
3										19/12		
-4				Oark greenish gray (Gley 1 4/1) CLAY; some s city, soft. Dry.	ilt; medium		4-8	58		7/12		
5 6			CL: Y	Yellowish brown (10 YR 5/6) CLAY; mottled vered clay; little silt; highly plastic, soft. Dry.	with bluish					9/12		
7			0 3.							11/12		
8										11/12		
9			CL: Y yellov	Vellowish brown, light bluish gray (Gley 2 7/1) wish red (5 YR 4/6) CLAY; highly plastic, soft	some t, dry.		8-12	83		5/12		
- 10										8/12		
- 11				ight bluish gray CLAY; little silt, trace fine when the silt is a constant of the silt.	hite gravel.					12/12		
- 12				um plasticity, soft, dry.	- 16		12-16	100		10/12		
- 13				ight bluish gray and yellowish brown CLAY; stiffening at depth. Low plasticity, dry.	some siit,		12 10	100		14/12		
-14										21/12		
15										24/12		
-16			CL: Y	Vellowish brown to light bluish gray CLAY; so	ome silt;		16-20	42		8/12		
-17	=:		∖ mediι	Im plasticity, slightly moist. IL: Light bluish gray to yellowish brown CLA	/					15/12		
-18			some	fine sand, low plasticity; slightly moist. Light bluish gray fine SAND; moist.						18/12		
19 -										25/12		
20				Very pale brown (10 YR 7/4) and yellow (10 Y	/R 7/6) fine to		20-24	100		13/12		
21 -	/.:/.			am SAND; trace silt, moist. Brownish yellow (10 YR 6/8) and black CLAY	and very pale					16/12		
			browi	n fine SAND; low plasticity, moist.						20/12		
23				Brownish yellow and black CLAY; little silt, translightly moist.	ace medium					20/12		
24	·		CL-M	IL: Brownish yellow and black CLAY and SIL	T; mostly		24-27.67	80		4/12		
25 -				Brownish yellow fine SAND and SILT; trace c	lay. Soft,					4/12		
26 - - 27			GM:	Very pale brown (10 YR 8/2), little yellow fine ILT; fairly stiff, slightly moist.	e GRAVEL					33/12		
27 28				,, o, og moto.						100/8		
			SANI	Very pale brown (10 YR 7/4) fine GRAVEL at D; some silt, stiff; very moist.	nd coarse		28-29	100		100/12		
- 20			END	OF SAMPLING								



						Colorida BILLHADVEV						
Log of	Borin	ıg: N	1W-	11B		Geologist: BILL HARVEY						
Subcontra	ctor: JA	CA A	ND SI	ERRA	Name of D	riller:EDI	JARDO S	ANTI	AGO			
Equipmen	t: SPL	IT SPO	OON, 4	I', 150 LB HAMMER	Drill Typ					ype: HSA	Λ	
Date Starte	ed: 5/1	1/200	7	Date Completed: 5/14/2007	Depth of Hole (ft): 56.00				Boring/Well:MONITORING WELL			
Elevation	(ft): 11	.40		Northing (m): 868472.99 Easting	(m):762204.	.53 U	TM NAD8	33	Gau	ged Deptl	h to Water (ft): 7.05	
Conditio	ns: G	rass										
Commen	ıts:	Bucl	hanan	, near El Toro Creek								
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name	
[°			SILT	Y LOAM: Organics			0-4	63		6/12		
1			brown	Park yellowish brown (10 YR 4/4) CLAY to dan (10 YR 4/2) clay, little silt; little fine to media	ırk grayish um gravel,					11/12		
			dry.							23/12		
3 -										19/12		
4				Park greenish gray (Gley 1 4/1) CLAY; some s	ilt; medium		4-8	58		7/12		
- -5			CL: Y	city, soft. Dry. Yellowish brown (10 YR 5/6) CLAY; mottled vered clay; little silt; highly plastic, soft. Dry.	with bluish					9/12		
6 -			gray,	red clay, fittle siit, fiighiy plastic, soit. Dry.						11/12		
- -7										11/12		
- -8			CL: Y	Yellowish brown, light bluish gray (Gley 2 7/1) vish red (5 YR 4/6) CLAY; highly plastic, soft	some		8-12	83		5/12		
9 -			yellov	vish red (5 YR 4/6) CLAY; highly plastic, soft	, dry.					8/12		
10										12/12		
11 -			CL: L Mediu	ight bluish gray CLAY; little silt, trace fine wl im plasticity, soft, dry.	nite gravel.					14/12		
12		_	CL: L	ight bluish gray and yellowish brown CLAY;	some silt,		12-16	100		10/12		
13 -			soft; s	tiffening at depth. Low plasticity, dry.						14/12		
14										21/12		
15 -										24/12		
16 -				ellowish brown to light bluish gray CLAY; so	me silt;		16-20	42		8/12		
17 -	士::		CL-M	ım plasticity, slightly moist. L: Light bluish gray to yellowish brown CLA fine sand, low plasticity; slightly moist.	Y and SILT;					15/12		
18 -				Light bluish gray fine SAND; moist.	/					18/12		
19 -										25/12		
-2 0				Yellow (10 YR 7/6) to brownish yellow (10 YF	R 6/6) fine		20-24	100		13/12		
21 -			SANI); little silt, wet.						19/12		
										19/12		
		-	CL: B	rownish yellow CLAY; some fine sand, little s	silt. Verv					20/12		
24		}	moist.				24-28	100		9/12		
25				Y and SILT; trace fine sand, fairly stiff. Moist.						15/12		
	Ξ::									18/12	BEGIN CARBONATE	
27			SW: I	Brownish yellow fine SAND; little clay, wet.							ZONE	



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-11B

Log of Boring: MW-11B											
Depth (ft)	USC Log	Samule	Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
28		⊠ ⊠	ĺ	GM: Very pale brown to light gray (10 YR 7/3, 7/2) fine				48/12			
20		⊠ ⊠		GRAVEL; some silt, dense; very moist. GM: Light gray to very pale brown fine GRAVEL; some coarse sand and silt; dense, wet.		28-30	100	59/12			
29		<mark>∷.</mark> ⊠		sand and silt; dense, wet.				100/12			
30		 ⊠									
31		 ⊠									
32		⊠									
-		⊠ ⊠		GM: Very pale brown fine GRAVEL; some coarse sand and silt; dense, wet.		32-33	100	100/12			
33 -		 ⊠									
34	×	⊠ • •	İ	GM: Very pale brown, yellowish brown (10 YR 5/8) fine		34-35.9	100	54/12			
35		<mark>⊠</mark> · · ·		GRAVEL, little silt, dense; wet.				100/11			
36	N I	⊠ ⊠ 	-	GM: Very pale brown, yellowish brown fine to medium		36-40	100	65/12			
37				GM: Very pale brown, yellowish brown fine to medium GRAVEL; some silt, little coarse sand, little clay. Dense, very moist.				57/12			
38		<u>⊠</u>									
-								88/12			
39 -		× ⊠						80/12			
-40	ĺl⊠	<u></u>	ŀ	GP: Very pale brown fine to medium GRAVEL and coarse		40-43	72	22/12			
-41	⊠ . ·	<u>a :</u>		SAND; trace silt. Wet.				20/12			
42	⊠ . · ⊠ . · ⊠	<u>a :</u>						100/12			
43	⊠ . · ⊠ . · ⊠	. ⊵									
44	⊠ . `	. №				44.40	40	12/12			
- 45	⊠ .:	. ⊠		GP: Very pale brown (10 YR 8/4, 8/3) fine to coarse GRAVEL and coarse SAND; little/trace silt; wet.		44-48	42	13/12			
-	⊠ . · ⊠	. ⊵						6/12			
	⊠ . · ⊠	<u>a :</u>						5/12			
-47	∷∷⊠	<u>a :</u>						13/12			
-48	፟ ⊠	4	ŀ	GP: Very pale brown fine GRAVEL and coarse SAND; trace silt,		48-52	63	6/12			
49	<u> </u>			wet.				7/12			
50	⊠ .	. №						2/12			
- 51	⊠	. ⊵									
-	⊠ . · ⊠	. ₪						1/12			
52 -		•		SP: Yellowish brown coarse SAND; some fine gravel, little silt. Wet.		52-56	81	14/12			
53 -	 ⊠			GM: Yellowish brown SILT and fine GRAVEL; little clay, moist.				40/12			
54	_ : _ 			CL-ML: Brownish yellow CLAY and SILT; trace fine gravel; slightly moist to dry.				33/12			
55			ŀ	CL-ML: Dark gravish brown (10 YR 4/2) CLAY and SILT to				65/12			
-56	Ξ.	-		light bluish gray (Gley 2 8/1) silt; dry.							
				END OF SAMPLING							



410-338-8202 FUERTO RICO											
Log of	Borir	ng: N	ΛW-	12A	· ·	Geologist: BILL HARVEY					
Subcontra	ctor: JA	ACA A	ND SI	ERRA	Name of D	riller:EDU	JARDO S	ANTI	AGO		
Equipmen	t: SPL	IT SP	OON, 4	4', 150 LB HAMMER				D	rill T	ype: HSA	Λ
Date Start	ed: 4/2	27/200	7	Date Completed: 4/27/2007	Depth of H	ole (ft):	36.00	•	Borin	g/Well:M	MONITORING WELL
Elevation	(ft): 10).51		Northing (m): 868572.11 Easting	(m):761632.	83 U'	TM NAD8	33	Gaug	ed Deptl	n to Water (ft): 6.19
Conditions: Asphalt											
Comments: Buchanan, on Perimeter Road near light pole 062											
Depth (ft)	USCS Log	Sample Interval		Description of Materials	I .	VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name
Γ0				HALT: Asphalt			0-4	50		23/12	
-1			and S	Bluish gray (Gley 2 5/1) and brown medium (ILT (fill); some medium sand.	/						
[-'			SC-SI and C	M: Dark yellowish brown (10 YR 4/6) coarse S LAY. Moist.	SAND, SILT,					30/12	
2	□ :			Bluish gray coarse GRAVEL. Dry. Very pale brown (10 YR 8/3) coarse, angular (GRAVEL					45/12	
-	N N N N N N N N N N		\ Dry.	ery pale brown medium GRAVEL and coarse	/					43/12	
3			silt. S	Slightly moist.						40/12	
-											
4	<u>⊠. ∶</u> ∠		GP: V Mois	Very pale brown coarse SAND and fine GRAV	EL; little silt.		4-8	50		13/12	
5			CL-F	ILL: Bluish gray and yellowish brown (10 YR y plastic, dry. (Fill material at 4 inches).	5/4) CLAY;						
-				y plastic, ary. (1 in material at 1 menes).						11/12	
6										12/12	
-											
-7										16/12	
8											
F -0			CL: N	Mottled red/blue/brown CLAY (LIMITED REC	COVERY).		8-12	5		9/12	
9										9/12	
-										<i>)</i> /12	
10										12/12	
<u> </u>											
11										13/12	
12							12.16			7/10	
-			CL: H	Grayish brown medium SAND and SILT; wet. Highly mottled light bluish gray (Gley 2 7/1) w	ith brownish		12-16	83		7/12	
13			yellov Dry.	w (10 YR 6/8) and red CLAY; medium plastic	ity, little silt.					12/12	
-											
-14										16/12	
- 15											
-10				IL: Yellow (10 YR 7/6) and black SILT and C	LAY; slightly					14/12	
- -16	工::			c, low stiffness. Dry.			16-20	100		10/12	
-			`	IL: Yellow and black SILT and CLAY, dry. Brownish yellow/white SILT, little clay.			10-20	100		10/12	
-17			ML: I	Brownish yellow SILT; some clay, soft; slightl	y plastic, dry.						



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-12A

Log of Boring: MW-12A									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name	
- 18							10/12		
- 19 -			SP: Brownish yellow (10 YR 6/6) medium to coarse SAND and medium GRAVEL; little silt, wet.				10/12	BEGIN CARBONATE	
20			SW: Brownish yellow coarse SAND and medium GRAVEL; some silt, wet.		20-24	83	5/12	ZONE	
21 			GP: Very pale brown coarse SAND and medium GRAVEL; trace silt, wet.				15/12		
22 -							22/12		
23							32/12		
24			GP: Very pale brown medium to coarse GRAVEL; little coarse sand, shells evident. Wet.		24-28	13	5/12		
25							1/12		
26 -							2/12		
27 -							1/12		
28 -	⊠. ∑	-	SW: Light yellowish brown (10 YR 6/4) medium SAND; wet.		28-30	83	19/12		
29 -		-	GW: Very pale brown medium to coarse GRAVEL; wet.				11/12		
30		-	GP: Very pale brown coarse SAND and medium GRAVEL; wet.		30-34	33	8/12		
31 -		-	SM: Light yellowish brown SAND and SILT; wet.				5/12		
32 -							2/12		
33 -							1/12		
34			SW: Light yellowish brown coarse SAND; wet.		34-36	100	32/12		
35			GM: Very pale brown, light yellowish brown coarse SAND, fine GRAVEL, and SILT; becoming drier with more silt at depth. Stiff, moist.				100/12		
-36			END OF SAMPLING						



410-338-8202 FUERTO RICO											
Log of	Borir	ng: N	MW-	-12B		Geologist: BILL HARVEY					
Subcontra	ictor: JA	ACA A	ND SI	ERRA	Name of D	riller:EDU	JARDO S	ANTI	AGO		
Equipmen	nt: SPL	IT SP	OON,	4', 150 LB HAMMER				D	rill T	ype: HSA	Λ
Date Start	ted: 4/	30/200)7	Date Completed: 5/1/2007	Depth of H	lole (ft):	56.00	•	Borin	g/Well:M	MONITORING WELL
Elevation	(ft): 10).58		Northing (m): 868558.58 Easting	(m):761625.	20 U	TM NAD8	33	Gaug	ed Deptl	n to Water (ft): 6.16
Conditions: Asphalt											
Comments: Buchanan, on Perimeter Road near light pole 062											
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	Reco	very	# Blows per # Inches	Remarks/Sample Name
Γ0				HALT: Asphalt			0-4	50		23/12	
1			and S	: Bluish gray (Gley 2 5/1) and brown medium (ILT (fill); some medium sand.	/						
-'			and C	M: Dark yellowish brown (10 YR 4/6) coarse S LAY. Moist.	SAND, SILT,					30/12	
2	<u>∠</u> .∷			Bluish gray coarse GRAVEL. Dry. Very pale brown (10 YR 8/3) coarse, angular 0	GRAVEL.					45/12	
-			\ Dry.	/ery pale brown medium GRAVEL and coarse	/					43/12	
3	l⊠ l≥		silt. S	Slightly moist.	, , , , ,					40/12	
-											
- -4	<mark>⊠.∵.</mark> ∠		GP: V Mois	/ery pale brown coarse SAND and fine GRAV	EL; little silt.		4-8	50		13/12	
5			CL-F	ILL: Bluish gray and yellowish brown (10 YR y plastic, dry. (Fill material at 4 inches).	5/4) CLAY;						
			mgmy	y plastic, dry. (1 in material at 4 inches).						11/12	
6										12/12	
-										12/12	
7										16/12	
<u> </u>											
- -8			CL: N	Mottled red/blue/brown CLAY (LIMITED REC	COVERY).		8-12	5		9/12	
_ - 9										0.44	
-										9/12	
10										12/12	
-											
-11										13/12	
12											
12				Grayish brown medium SAND and SILT; wet. Highly mottled light bluish gray (Gley 2 7/1) w	ith brownish		12-16	83		7/12	
13			yellov Dry.	w (10 YR 6/8) and red CLAY; medium plastici	ty, little silt.					12/12	
-			,							12/12	
-14										16/12	
+											
- -15			CI -M	IL: Yellow (10 YR 7/6) and black SILT and C	LAY: slightly					14/12	
16	士::			c, low stiffness. Dry.							
- 10				ML: Yellow and black SILT and CLAY, dry. Brownish yellow/white SILT, little clay.			16-20	100		10/12	
17			_	Brownish yellow SILT; some clay, soft; slightl	y plastic, dry.						



Log of Boring: MW-12B								
Depth	USCS Log	nple	Description of Materials	Screening	Depth	Recovery	# Blows per	Remarks/Sample Name
(ft)	Log	San Inte	Description of Materials	VOC (ppm)	(ft)	(%)	# Inches	r
L				<u> </u>	<u> </u>	 	10/12	
-							10/12	
- -18							14/12	
- 19								
- 13			SP: Brownish yellow (10 YR 6/6) medium to coarse SAND and				10/12	BEGIN CARBONATE
20			medium GRAVEL; little silt, wet. SW: Brownish yellow coarse SAND and medium GRAVEL;		20-24	83	5/12	ZONE
-			some silt, wet. GP: Very pale brown coarse SAND and medium GRAVEL; trace					
21			silt, wet.				15/12	
22	⊠.							
22	<mark>∵∷⊠</mark>						22/12	
23							32/12	
-							32/12	
24	\boxtimes . \square		GP: Very pale brown medium to coarse GRAVEL; little coarse		24-28	13	5/12	
-			sand, shelfs evident. Wet.					
25							1/12	
26							2/12	
-							2/12	
27							1/12	
-								
28			SW: Light yellowish brown (10 YR 6/4) medium SAND; wet.		28-30	83	19/12	
-			GW: Very pale brown medium to coarse GRAVEL; wet.				11/12	
30			GP: Very pale brown coarse SAND and medium GRAVEL; wet.		30-34	33	8/12	
-			or very pare or an example of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of the ball of					
31	⊠.∷.⊠ ∵ ·: ·:		SM: Light yellowish brown SAND and SILT; wet.				5/12	
32			SW. Light yellowish blown 57.145 and 51E1, wee.					
- 32							2/12	
33							1/12	
-								
34			SW: Light yellowish brown coarse SAND; wet.		34-36	100	32/12	
25			GM: Very pale brown, light yellowish brown coarse SAND, fine GRAVEL, and SILT; becoming drier with more silt at depth.					
- -35			Stiff, moist.				100/12	
36			044		36-37.67	100	34/12	
+			GM: Very pale brown (10 YR 7/4) to light yellowish brown (10 YR 6/4) medium GRAVEL, coarse SAND, and SILT; moist.		0.1.0/	100	34/12	
37			CL: Light yellowish brown to brown (10 YR 5/3) CLAY; some silt, little coarse sand, trace fine white gravel. Medium plasticity, slightly moist.				100/8	
+			passenty, sugary moise.					
⊢ -38				l	l	I	I	l l



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-12B

Log of Boring: MW-12B											
Depth (ft)	USC	Sample	ıntervai	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
-											
39											
_											
40											
		<mark></mark> ⊠		GM: Very pale brown (10 YR 8/3) medium angular GRAVEL, coarse SAND, and SILT; little brownish yellow (10 YR 6/8)		40-40.83	100	100/10	BEGIN CARBONATE ZONE		
44		<mark></mark> ⊠		coloration. Medium density, very moist.							
-41											
Ī		 <mark>⊠</mark>									
-42		<u> </u>	ı	GM: Yellow (10 YR 7/6), very pale brown, and brownish yellow		42-43	100	100/12			
-		<mark>⊠</mark>		fine GRAVEL, coarse SAND, and CLAY; little silt, dense, moist.							
43		⊠									
-		<mark>⊠</mark> ⊠									
44		X X	ŀ	GM: Very pale brown and brownish yellow SILT and fine		44-45	100	100/12			
-		⊠		GRAVEL; Moist.							
45			t	ML: Brownish yellow SILT; some fine gravel; dense, slightly							
_				moist.							
46											
		⊠		GM: Very pale brown (10 YR 8/3) and greenish gray (Gley 1 6/1) medium GRAVEL and CLAY; some coarse sand, moist.		46-48	83	98/12			
47				on the model of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer o							
-47		⊠		GM: Very pale brown (10 YR 7/4, 8/3) coarse SAND and medium GRAVEL; some silt, trace clay. Moist.				20/12			
		 ☑		, , ,							
-48		•	ŀ	SM: Very pale brown coarse SAND and SILT; trace clay, moist.		48-51.83	100	61/12			
-		. I2	f	GP: Very pale brown coarse SAND and fine to medium							
-49				GRAVEL (with shells); little silt, wet.				73/12			
-		l .									
50	⊠ .	Ø						91/12			
-		Ø						71,12			
- -51								100/10			
	⊠ ⊠	. Ø						100/10			
52	⊠.:	Ø									
_ 02		l ·		GP: Very pale brown (10 YR 8/3) medium GRAVEL and coarse SAND; little silt, wet.		52-53.67	100	82/12			
F2		Σ									
- -53		 ⊠		GM: Very pale brown to yellow (10 YR 7/6) medium GRAVEL and SILT, siltier at depth; moist.				100/8			
	N	 ☑									
- -54		Ī	ŀ	ML: Very pale brown (10 YR 7/4) to brownish yellow (10 YR		54-55.83	100	63/12			
t				6/6) SILT and fine GRAVEL; slightly moist.							
55			ŀ	ML: Brownish yellow SILT; trace fine gravel, slightly moist.				100/10			
+				, ,, ,,,,,							
L ₋₅₆			\downarrow	END OF SAMPLING /	<u> </u>						
				END OF SAMIFFING							



				+10-330-0202				10		101	
Log of	Borir	ng: N	ΔW-	13A	1		gist: BII				
Subcontra	ctor: JA	CA A	ND SI	ERRA	Name of D	riller:EDU	JARDO S	ANTI	AGO		
Equipmen	t: SPL	IT SPO	OON,	4', 150 LB HAMMER				D	rill Ty	ype: HSA	Λ
Date Start	ed: 5/8	8/2007	,	Date Completed: 5/8/2007	Depth of H	Iole (ft):	40.00	•	Borin	g/Well:M	MONITORING WELL
Elevation	(ft): 10).25		Northing (m): 869204.47 Easting	(m):762397.	.50 U	TM NAD8	33	Gaug	ed Deptl	n to Water (ft): 5.69
Condition	ons: G	rass									
Commer	nts:	Buc	hanan	, grass near back gate on Perimeter	Road, near L	LP 067					
Depth (ft)	USCS Log	Sample Interval		Description of Materials	I	Screening VOC (ppm)	Depth (ft)	Reco	very	# Blows per # Inches	Remarks/Sample Name
			ML: I sand.	Brown (10 YR 4/3) SILT and organics; some of	clay, trace fine		0-4	50		9/12	
1	·: -: -:		FILL:	E Black aggregate. Yellowish brown (10 YR 5/8) medium SAND:	some silt.					11/12	
- 2				coarse gravel. Moist.	, ,					7/12	
3										6/12	
		-	CH: E	Sluish gray (Gley 2 5/1) to bluish grey (Gley 2 1 gray (Gley 2 4/1) CLAY; soft, high plasticity	6/1) to dark r; little/trace		4-8	83		2/12	
5			reddis	sh brown silt; moist.						4/12	
6										7/12	
7										10/12	
8			СН: Г	Dark bluish gray, highly plastic CLAY.			8-12	100		7/12	4
- 9		•	SW: I	Bluish gray to yellowish brown to white fine S	AND; wet.					14/12	
- 10										12/12	
11		•	CH: Y	Yellowish brown CLAY; some mottling; highl	y plastic,					7/12	
12		-	CH: E	Brownish yellow (10 YR 6/6) to light olive bro LAY; trace light bluish clay; trace black clay	own (2.5 Y		12-16	63		5/12	
13			plastic	c, slightly moist, medium stiffness.	, mgmy					6/12	
14										11/12	
15										20/12	
16		-	CL: R	teddish brown (5 YR 4/4) with mottles of black	k, bluish gray,		16-20	75		11/12	
17			brown Dry.	nish yellow CLAY; little silt; medium plasticit	y, aense.					20/12	
18										31/12	
- 19											



FORT BUCHANAN PUERTO RICO

Log of	Log of Boring: MW-13A										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name			
- 20 - 21			CL: Reddish brown mottled CLAY; medium plasticity and stiffness; dry.		20-24	15	28/12 10/12 20/12				
							28/12				
	<u>:: :: :</u>		SM: White with black striations fine SAND and SILT; trace clay. Moist.		24-28	100	9/12				
25 - 26			CL: Yellowish brown CLAY; stiff; some fine sand, trace white/black striations. Moist.				13/12 14/12				
27 28			CL: Yellowish brown (10 YR 5/6) CLAY; soft, dry.		28-32	79	17/12				
- 29 - 30			SC: White and black fine SAND and CLAY; moist. SC: Yellowish brown (10 YR 5/8) fine SAND and CLAY; little silt; soft, moist. GW: Dark yellowish brown (10 YR 3/6) fine to medium GRAVEL; wet.				11/12				
- 31			SW: Yellowish red (5 YR 4/6) fine SAND; little clay, little silt. Wet. SC: Yellowish red (5 YR 5/8, 4/6) with trace brownish yellow (10 YR 6/8) fine SAND and CLAY; trace silt; very soft, very moist.		30-34	50	5/12				
32 33							6/12				
34 35											
36 - 37			CL: Yellowish red CLAY; some fine sand, little silt; very soft, medium plasticity, very moist.		36-40	50	7/12 11/12				
- 38 - 39			SC: Yellowish red fine SAND; some clay, little silt; soft, low plasticity, very moist/wet.				20/12				
-40			END OF SAMPLING				29/12				



`				+10-330-0202								
Log of	Borin	ng: N	ΛW-	13B		Geolog	gist: BII	LL HA	RVEY	<i>I</i>		
Subcontra	actor: JA	ACA A	ND SI	ERRA	Name of E	riller:EDU	J ARDO S	ANTI	AGO			
Equipmen	nt: SPL	IT SP	OON, 4	4', 150 LB HAMMER				D	rill T	ype: HSA	Λ	
Date Star	ted: 5/	2/2007	,	Date Completed: 5/4/2007	Depth of H	Iole (ft):	64.00		Boring/Well:MONITORING WELL			
Elevation	(ft): 10	0.31		Northing (m): 869213.05 Easting	(m):762389	.97 U	TM NAD8	33	Gaug	ged Deptl	n to Water (ft): 5.87	
Conditi	ons: G	rass										
Comme	nts:		hanan	, grass on Perimeter Road corner nea	ar back gate	, LP 067						
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	Reco	%)	# Blows per # Inches	Remarks/Sample Name	
[0			ML: I	Brown (10 YR 4/3) SILT and organics; some c	lay, trace fine		0-4	50		9/12		
1			FILL:	Black aggregate.						11/12		
2				Vellowish brown (10 YR 5/8) medium SAND; coarse gravel. Moist.	some siit,					7/12		
3 -										6/12		
	.1.1.		CH: E bluish reddis	Bluish gray (Gley 2 5/1) to bluish grey (Gley 2 gray (Gley 2 4/1) CLAY; soft, high plasticity the brown silt; moist.	6/1) to dark ; little/trace		4-8	83		2/12		
6										4/12		
-7										7/12		
-										10/12		
- -8				Dark bluish gray, highly plastic CLAY.			8-12	100		7/12	4	
<u> -</u> 9			SW: I	Bluish gray to yellowish brown to white fine S.	AND; wet.					14/12		
10										12/12		
11 -			CH: Y moist	Vellowish brown CLAY; some mottling; highly	y plastic,					7/12		
12 -			CH: H 5/4) C	Brownish yellow (10 YR 6/6) to light olive bro CLAY; trace light bluish clay; trace black clay;	wn (2.5 Y highly		12-16	63		5/12		
13 -			plasti	e, slightly moist, medium stiffness.						6/12		
14 -										11/12		
15 -										20/12		
16 			brown	eddish brown (5 YR 4/4) with mottles of black hish yellow CLAY; little silt; medium plasticit	k, bluish gray, y, dense.		16-20	75		11/12		
17 -			Dry.							20/12		
18 										31/12		
- -19												



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-13B											
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name			
L					[28/12				
20			CL: Reddish brown mottled CLAY; medium plasticity and stiffness; dry.		20-24	15	10/12				
21 -							20/12				
22 -							28/12				
23 -							34/12				
24			SM: White with black striations fine SAND and SILT; trace clay. Moist. CL: Yellowish brown CLAY: stiff: some fine sand trace.		24-28	100	9/12				
25 - 26			CL: Yellowish brown CLAY; stiff; some fine sand, trace white/black striations. Moist.				13/12				
							14/12				
28					28-32	79	6/12				
-	<u> </u>		CL: Yellowish brown (10 YR 5/6) CLAY; soft, dry. SC: White and black fine SAND and CLAY; moist.		26-32	/9	0/12				
29 -			SC: Yellowish brown (10 YR 5/8) fine SAND and CLAY; little silt; soft, moist. GW: Dark yellowish brown (10 YR 3/6) fine to medium				11/12				
30 -			GRAVEL; wet. SW: Yellowish red (5 YR 4/6) fine SAND; little clay, little silt. Wet.				13/12				
31							11/12				
32 - 33			SW: Yellowish red fine SAND; trace silt. Wet.		32-36	75	7/12				
-34			ML: Yellowish red SILT; little clay, trace fine sand. Very moist.				10/12				
35	: Н Н::		CL-ML: Yellowish red CLAY and SILT; soft; some fine sand. Moist.				15/12				
-	□ : H						15/12				
36 -			ML: Yellowish red SILT; some fine sand; (intervals of fine sand, some silt); little clay; soft, wet.		36-40	63	10/12				
37							13/12				
38							25/12				
39 - 40							24/12				
-	□ :		CL-ML: Yellowish red (5 YR 4/6) CLAY and SILT; medium plasticity, stiff; trace fine sand, trace organics, slightly moist.		40-44	79	17/12				
41 -	H ::						31/12				
42 -	= : I						51/12				



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-13B											
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name			
43							51/12				
44 -			CL: Yellowish red CLAY; some silt, stiff. CL: Yellowish red CLAY; some fine sand, little silt; softening,		44-48	83	17/12				
45 -			moist. SW: Yellowish red fine SAND; little silt. Wet.				29/12				
46 	1 1 1 1		CL: Yellowish red CLAY; some silt and fine sand; slightly stiff, moist. OL: Olive yellow (2.5 Y 6/6) SILT; some black organics, little yellowish red clay. Stiff, dry.				35/12				
47 -	1 1 1 1		yenowish rea chay. Shiri, ary.				34/12				
48 	0000		OH: Greenish gray (Gley 2 6/1), black, yellowish red CLAY; some silt, stiff.		48-52	96	21/12				
49 -			ML: Very pale brown (10 YR 7/3, 7/4, 8/2) SILT; little to some fine to medium gravel, trace coarse sand. Slightly moist.				43/12	BEGIN CARBONATE ZONE			
50 -							40/12				
51 -			ML: Greenish gray to yellow (10 YR 7/6) SILT; little clay, stiff,				39/12				
52 -			dry. ML: Yellow (10 YR 7/8) and brownish yellow (10 YR 6/8) SILT; little clay, trace fine gravel. Stiff, dry.		52-56	83	19/12				
53 -							15/12				
54 -			GM: Yellow to very pale brown SILT and fine to coarse GRAVEL; little clay, trace coarse sand; wet.				9/12				
55 -							5/12				
56 -			CL-ML: Brown CLAY and SILT.		56-60	17	0/12				
57 -			GP: Very pale brown coarse SAND and medium GRAVEL; wet.				3/12				
58 -							0/12				
59 -							0/12				
60			GP: Very pale brown fine to medium GRAVEL and coarse SAND; little silt, wet.		60-60.67	100	100/8				
61 -			,								
62 			GP: Very pale brown coarse SAND and fine GRAVEL; some silt, moist.		62-64	67	57/12				
63 							54/12				
-64			END OF SAMPLING								



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-14A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: SPLIT SPOON, 4', 150 LB HAMMER Drill Type: HSA Date Started: 12/12/2007 Boring/Well:MONITORING WELL 12/13/2007 Date Completed: Depth of Hole (ft): 44.00 Elevation (ft): 22.16 UTM NAD83 Gauged Depth to Water (ft): 9.50 Northing (m): 867653.23 Easting (m):762300.5 Conditions: Grass Buchanan, east of DPW near creek Comments: Sample Interval Screening # Blows Depth Recovery USCS Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches Γ^0 NS: No lithology collected **├** -1 -2 -3 -- -4 -5 F-6 -7 F--8 Ľ-9 --10 - -11 - -12 - -13 -14 -15 - -16 - -17 - -18 -- -19 -- -20 - -21 - -22 -23 -24 **-- -25** -26 -27 -28 -29 -30 -31 -- -32 - -33 **- -34** × 100/12 34-38 100 GP: Very pale brown (10 YR 8/3) fine to coarse GRAVEL; some coarse sand; little silt; very dense, wet. - -35 . ∵ . ⊠ -36 - **-**37 × --- -38 ⊠ --- -39 .: ||X| ||X| 39-43 100 100/12 GM: Very pale brown (10 YR 7/4, 8/3) GRAVEL; some --40 yellowish brown (10 YR 5/8) silt; little coarse sand, wet. . . ⊠ - -41 . . ⊠ . . ⊠ -42 -43 . . ⊠ . . ⊠ -44

END OF SAMPLING



_	410-358-8202 FUERTO RICO										
Log of	Borir	ng: N	AW-	14B		Geolog	gist: BIL	L HA	ARVEY	7	
Subcontra	actor: JA	ACA A	ND SI	ERRA	Name of D	riller:EDU	JARDO S	ANTI	AGO		
Equipmen	nt: SPL	IT SP	OON, 4	4', 150 LB HAMMER				D	rill T	ype: HSA	A
Date Star	ted: 12	/7/200	07	Date Completed: 12/12/2007	Depth of H	lole (ft):	60.00		Borin	ng/Well:M	MONITORING WELL
Elevation	n (ft): 21	1.71		Northing (m): 867665.24 Easting	(m):762299.	.44 U	TM NAD8	33	Gaug	ged Deptl	h to Water (ft): 0.00
Conditi	ons: G	rass									
Comme	nts:		hanan	, east of DPW near creek							
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	l	overy	# Blows per # Inches	Remarks/Sample Name
\[\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1 1 1 1			Oark yellowish brown (10 YR 5/6) SILT (organisoft, mostly dry.	nics); some		0-4	52		4/12	end
				IL: Striated/mottled white (10 YR 8/1), yellow nd yellowish brown (10 YR 5/8) SILT and CL	ish red (5 YR						
1	士::: ///		plastic	city, mostly dry.						9/12	
			black	Grayish brown (10 YR 5/2) CLAY; some silt, to (10 YR 2/1) gravel, soft; mostly dry.	race fine						
2										12/12	
3										13/12	
-											
4			CH: N 7/1) C	Mottled yellowish brown (10 YR 5/6) and light LAY; very soft, medium to high plasticity; lit	gray (10 YR tle fine round		4-8	83		6/12	
-			grave	l at depth. Moist.							
5										9/12	
-											
6											
-0										14/12	
7										14/12	
-											
8	7										
			(Gley	Mottled yellowish brown (10 YR 5/6) and light 2 7/1) CLAY; trace yellowish red (5 YR 4/6) city, very soft, dry.			8-12	100		5/12	
-			piasti	ωι, νων 301ι, αι γ.							
9										8/12	
-											
10											
-10										12/12	



Log of Boring: MW-14B										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
11			GW: Dark reddish brown (5 YR 3/4) coarse GRAVEL; little silt,				17/12			
12			dry. CL: Light bluish gray (Gley 2 7/1) CLAY; slightly stiff; medium plasticity, dry. GW: Dark reddish brown (5 YR 3/4) fine to coarse GRAVEL; little silt, dry.		12-16	100	7/12			
13 -			CL: Mottled white (10 YR 8/1) and yellowish red (5 YR 4/6) CLAY; little fine sand, trace remnant organics; trace fine gravel, medium plasticity, medium stiff, dry.				12/12			
14 							17/12			
15 -							20/12			
16 			CL: Mottled light bluish gray (Gley 2 7/1) yellowish red (5 YR 4/6) and browish yellow (10 YR 6/8) CLAY; some silt, stiff, medium plasticity; dry.		16-20	100	7/12			
17							16/12			
18 							20/12			
19 							20/12			
20 	±:=		CL-ML: Mottled brownish yellow (10 YR 6/8) and black (10 YR 2/1) CLAY; some silt; fairly stiff, low to medium plasticity, mostly dry.		20-24	100	7/12			
21 							15/12			
							17/12			
	Ξ:									



Log of	Borin	ıg: N	/IW-14B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
23	=: =						18/12	
-	#:: ::::							
24		-	SM: Brownish yellow (10 YR 6/8) SILT and fine SAND; trace black (10 YR 2/1) organics, moist.		24-28	92	8/12	
	<u> </u>	-	CL-ML: Yellowish brown (10 YR 5/8) CLAY and SILT; some black (10 YR 2/1) silt, mostly dry.					
25		-	GM: Very pale brown (10 YR 7/4) fine GRAVEL, SILT and coarse SAND; dense, dry.				19/12	
26							100/12	
-							100/12	
27							100/12	
-								
28			GP: Very pale brown fine GRAVEL; some coarse sand, little silt; dense, moist to wet.		28-30	1100	100/12	
29								
29								
30			SM: Greenish gray (Glev 1 6/1) coarse SAND and SILT: little		30-34	56	22/12	
+			SM: Greenish gray (Gley 1 6/1) coarse SAND and SILT; little yellowish brown (10 YR 5/8) silt; moist. ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR					
31			5/8) SILT; stiff, mostly dry.				33/12	
-								
32							100/12	
33								
-								
34			GM: Very pale brown (10 YR 8/2) SILT and fine GRAVEL;		34-36	100	100/12	
-			trace clay and coarse sand; dense, moist.					
35								
				-		•	•	. '



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-14B											
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name			
36 			GM: Very pale brown (10 YR 7/4) SILT and fine GRAVEL; little yellowish brown (10 YR 5/8) silt; moist.		36-38	100	100/12				
37 -	X										
38 -			GP: Very pale brown (10 YR 7/4) fine to coarse GRAVEL; some coarse sand, little silt; dense, wet.		38-42	100	100/12				
39 -											
41 											
42 			GP: Very pale brown fine to coarse GRAVEL and coarse SAND; some silt, dense, wet.		42-46	100	100/12				
43 			ML: Very pale brown (10 YR 7/4) SILT; some fine gravel, very moist.								
44 -											
45 											
			GP: Very pale brown (10 YR 7/4) coarse GRAVEL and SILT; some coarse sand, very moist. ML: Greenish gray (Gley 2 6/1) SILT; some fine gravel, moist.		46-50	100	100/12				
47 -			GM: Bluish gray (Gley 2 6/1) fine to coarse angular GRAVEL and SILT; dense, moist.								
48											



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-14B										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
=										
- 49 -										
50			GP: Bluish gray (Gley 2 6/1) coarse angular GRAVEL and coarse SAND; little silt, dense, very moist.		50-54	100	100/12			
- 51 -										
52										
53										
— -54			GW: Very pale brown (10 YR 7/4) fine GRAVEL; little silt, little coarse sand; very moist.		54-58	100	100/12			
- 55			GP: Bluish gray (Gley 2 6/1) fine GRAVEL and coarse SAND; little silt, very moist. GP: Gray (10 YR 6/1) and light gray (10 YR 7/1) fine to coarse GRAVEL and coarse SAND; trace silt, wet.							
										
- 57										
58			SM: Bluish gray (Gley 2 6/1) fine SAND and SILT; wet. SW: Light greenish gray (Gley 2 8/1) fine SAND; some coarse		58-62	100	69/12			
59 			gravel, little silt; wet.				100/12			
-60			END OF SAMPLING							



FORT BUCHANAN PUERTO RICO

				ı					
Log of Borin	ng: MW-	15A		Geolog	gist: BIL	L HA	RVEY	·	
Subcontractor: JA	ACA AND SI	ERRA	Name of Dri	iller:EDU	JARDO S.	ANTL	AGO		
Equipment: SPL	IT SPOON, 4	4', 150 LB HAMMER				D	rill T	ype: ^{HSA}	Δ
Date Started: 11	/16/2007	Date Completed: 11/26/2007	Depth of Ho	le (ft):	40.00		Borin	g/Well:M	MONITORING WELL
Elevation (ft): 19	0.95	Northing (m): 867972.17 Easting	(m):762517.2°	7 UI	ΓM NAD8	3	Gaug	ed Deptl	n to Water (ft):14.97
Conditions: G	rass								
Comments:	Buchanan								
Depth (ft) USCS Log	Sample Interval	Description of Materials	So	VOC (ppm)	Depth (ft)	Reco	very	# Blows per # Inches	Remarks/Sample Name
- 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 38 38 38 38 39 39 38 38 38 38 38 38 38 39 39 30 31 38 38 38 39 38 38 39 39 30 31 32 33 34 35 36 37 38 38 39 39 30 31 32 33 34 35 36 37 38 38 39 30 31 32 33 34 35 36 37 38 38 39 30 31 32 33 34 35 36 37 38 38 38 38 38 39 30 30 30 31 32 38 38 38 39 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30	CL-M sand, SW: Y CL: Y sand/f GM: Y GRAY ML: E grave GM: V GRAY	IL: Yellowish red (5 YR 5/6) CLAY and SILT trace gravel; slightly moist. Yellowish brown (10 YR 5/6) find SAND; moi fellowish brown (10 YR 5/6) CLAY; some silt fine gravel; slightly moist. Yellowish brown (10 YR 5/6) CLAY; some silt fine gravel; slightly moist. Yellow (10 YR 5/6) SILT; some fine Justice Clay, little clay, little coarse sand; moist. Brownish yellow (10 YR 6/6) SILT; some fine Justice Clay, little Clay,	st. , little coarse R 8/1) to coarse		32-36 36-40	100		14/12 21/12 36/12 75/12 24/12 22/12 54/12 92/12	CARBONATE ZONE



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-15B Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: SPLIT SPOON, 4', 150 LB HAMMER Drill Type: HSA Boring/Well:BOREHOLE Date Started: 11/13/2007 Date Completed: 11/14/2007 Depth of Hole (ft): 68.50 Elevation (ft): UTM NAD83 Gauged Depth to Water (ft): NA Northing (m):0 Easting (m):0 Conditions: Grass Buchanan Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 0-2 15/12 ML: Very dark grayish brown (10 YR 3/2) organic material 67 GW: Very pale brown (10 YR 7/4) coarse GRAVEL; (fill), dry. CL: Light yellowish brown (10 YR 6/4) CLAY (fill); little fine gravel, dry. 6/12 -2 2-4 CL: Light yellowish brown (10 YR 6/4) CLAY; little fine gravel. 58 8/12 CL: Gray (10 YR 5/1) little brown (10 YR 5/3) CLAY; highly plastic, soft; trace silt. Dry. -3 8/12 - -4 4-6 62 3/12 CL: Gray (10 YR 5/1) and brown (10 YR 5/3) CLAY; hight plasticity, soft; little silt, trace black (10 YR 2/1) organic -5 5/12 -6 6-8 67 9/12 CL: Gray (10 YR 5/1) and brown (10 YR 5/3) CLAY; soft, CL: Bluish gray (Gley 2 5/1) CLAY; high plasticity, soft; little yellowish brown (10 YR 5/6) silt. Dry. -7 9/12 - -8 8-10 38 4/12 CL: Brown (10 YR 4/3) and yellowish brown (10 YR 5/6) CLAY; medium plasticity, solme silt. Dry, moistening at



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-15B											
Depth (ft)	USCS Log		Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name			
9 -							5/12				
10 -			CL: Highly mottled brown (10 YR 4/3), yellowish brown (10 YR 5/6) and reddish brown (5 YR 4/4) CLAY; highly plastic; fairly stiff, little silt, trace fine gravel. Mostly dry.		10-12	100	12/12				
11 							14/12				
12 -			CL: Highly mottled light bluish gray (Gley 2 7/1), reddish brown (5 YR 4/4) and yellowish brown (10 YR 5/6) CLAY; trace to little medium white (10 YR 8/1) sand; dry.		12-14	100	7/12				
13 -							14/12				
- -14			CL: Light bluish gray (Gley 2 7/1) CLAY; highly plastic, stiff; little yellowish brown (10 YR 5/6) silt, trace fine sand. Dry.		14-16	100	19/12				
15 -			ML: Light bluish gray (Gley 2 7/1) and yellowish brown (10 YR 5/6) SILT; stiff; little medium sand. Dry.				22/12				
16 -			ML: Dark yellowish brown (10 YR 4/6) SILT; some clay, trace medium sand, stiff, dry.		16-18	100	12/12				
17 -			CL: Light bluish gray (Gley 2 7/1) CLAY; some yellowish red (5 YR 4/6) silt, trace medium sand, stiff; dry.				23/12				
18 -			CL-ML: Yellowish red (5 YR 4/6) SILT and CLAY; very stiff, trace medium sand. Dry. CL-ML: Light bluish gray (Gley 2 7/1) CLAY and yellowish		18-20	83	25/12				
19 -			brown (10 YR 5/6) SILT; stiff, dry. CL-ML: Yellowish brown (10 YR 5/6) CLAY and SILT; very stiff, medium plasticity; dry.				30/12				



FORT BUCHANAN PUERTO RICO

Log of	Borir	ig: N	MW-15B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
20 -	#:: -::# ::::: :::::		CL-ML: Yellowish brown (10 YR 5/8) and light bluish gray (Gley 2 7/1) CLAY and SILT; little medium sand; stiff, dry.		20-22	100	11/12	
21	H::H::						18/12	
- 			SC-SM: Yellowish brown (10 YR 5/8) SILT, CLAY, and medium SAND; medium plasticity, slightly moist.		22.24	100	22/12	
-			CL-ML: Mottled brownish yellow (10 YR 6/8), light bluish gray (Gley 2 7/1), little yellowish red (5 YR 4/6) CLAY and SILT; trace fine gravel, stiff; low plasticity, dry.		22-24	100	23/12	
23 -							37/12	
			CL-ML: Strong brown (7.5 YR 5/6) some mottles of yellowish brown (10 YR 5/8) and yellowish red (5 YR 4/6) CLAY and SILT; trace to little fine-coarse gravel, stiff; dry.		24-26	100	14/12	
25 -	::::::::::::::::::::::::::::::::::::::						21/12	
] H H H H H H H H H H H H H H H H H H H		CL-ML: Strong brown (7.5 YR 5/6) with light bluish gray (Gley 2 5/1) mottled CLAY; trace fine gravel (iron oxide); to brownish yellow (10 YR 5/8) SILT; some clay. Stiff, dry.		26-28	100	33/12	
27 -							37/12	
28 -	-: -t -		CL-ML: Strong brown (7.5 YR 5/6) to yellowish brown (10 YR 5/8) CLAY and SILT; fairly stiff, low plasticity; little black (10 YR 2/1) silt (organics). Dry.		28-30	100	9/12	
29 -	H H H H H H H H H H H H H H H H H H H							
30 -	T : T :		CL: Yellowish brown (10 YR 5/8) with many black mottles CLAY: some silt, very stiff, medium plasticity, dry.		30-32	100	27/12	



FORT BUCHANAN PUERTO RICO

Log of	Borir	1 <u>g:</u> N	MW-15B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
31 -							30/12	
32 -			GC: Yellowish brown (10 YR 5/8) and reddish brown (5 YR 4/4) CLAY and fine to coarse GRAVEL; stiff; medium plasticity; dry.		32-34	92	11/12	
33 -			CL: Yellowish brown (10 YR 5/8) with black mottled (10 YR 2/1) CLAY; some silt, trace coarse sand; stiff, dry.				15/12	
34 -			CL: Yellowish brown (10 YR 5/8) CLAY; stiff, slightly plastic, dry. ML: Yellow (10 YR 7/6) SILT; some fine white gravel, very		34-36	100	47/12	
35 -			stiff; very slight moisture.				71/12	
36 -			ML: Yellowish brown (10 YR 5/8) SILT; little fine white (10 YR 8/1) gravel; moist.		36-38	96	32/12	
37			GW: Yellow (10 YR 7/6) to very pale brown (10 YR 7/4) coarse GRAVEL; some coarse sand, trace clay. Wet.				63/12	
38			GP: Very pale brown (10 YR 7/4) coarse GRAVEL, some coarse sand; little silt, wet.		38-40	100	34/12	
39							52/12	
40			ML: Very pale brown (10 YR 8/2) SILT; little yellowish brown (10 YR 5/8) silt, trace fine sand. Mostly dry. ML: Very pale brown (10 YR 7/3) and light gray (10 YR 7/2) SILT; little fine gravel; very stiff, dry.		40-42	100	52/12	
41							100/12	



FORT BUCHANAN PUERTO RICO

Log of	Borir	ıg: N	MW-15B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
42 -			ML: Very pale brown (10 YR 7/4) to greenish gray (Gley 2 6/1) SILT; to silt and fine sand to silt; stiff, slightly moist.		42-44	100	49/12	
43 -							74/12	
44 -			ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/6) SILT; trace fine white (10 YR 8/1) gravel; stiff, dry.		44-46	67	13/12	
45 -			ML: Greenish gray (Gley 1 6/1) to light gray (10 YR 7/2) SILT; some fine white gravel, stiff, dry.				43/12	
46 -			UNKNOWN: NO RECOVERY		46-48	0	100/12	
47 -								
48 -			GM: Very pale brown (10 YR 7/4) and yellowish brown (10 YR 5/8) SILT and fine to coarse GRAVEL; very stiff, slightly moist.		48-50	100	49/12	
49 -			ML: Greenish gray (Gley 1 6/1), little yellowish brown (10 YR 5/8) SILT; some fine white (10 YR 8/1) gravel, very stiff, slightly moist.				94/12	
50 -			UNKNOWN: NO RECOVERY		50-51	0	100/12	
51 			ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; little fine gravel, moist. GM: Bluish gray (Gley 2 5/1) and greenish gray (Gley 2 5/1) fine GRAVEL; some silt, little coarse sand; stiff, slightly moist.		51-53	100	100/12	
52 -								



FORT BUCHANAN PUERTO RICO

Log of	Born	<u>ng</u> : N	AW-15B					
Depth (ft)	USCS Log		Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
53 -			ML: Greenish gray (Gley 2 5/1) and some yellowish brown (10 YR 5/8) SILT; some fine gravel, dense; very stiff, mostly dry.		53-55	100	100/12	
54 -								
55 -			GM: Greenish gray (Gley 2 6/1, 5/1) SILT; fine GRAVEL (shells) and coarse SAND; moist, dense.		55-57	100	100/12	
56 - 57					57.50	100	100/12	
- - 58			GM: Greenish gray (Gley 2 6/1) SILT and fine GRAVEL; trace coarse gravel; very stiff, moist.		57-59	100	100/12	
- 59								
60 			ML: Dark greenish gray (Gley 2 4/1) SILT; little fine gravel (shells); very stiff, mostly dry.		60-62	100	64/12	
61							100/12	
62								
63			GM: Dark greenish gray (Gley 2 4/1) SILT and fine white GRAVEL (shells); very stiff, slightly moist.		63-65	100	100/12	



T	CD	•	B # T T T 7	4 = T
$1 \alpha \alpha$	of Bo	rina.	N/I N// .	_ I 5 K
LUE	$o_1 o_2$	ume.	TAT AA.	-120

Depth (ft)	Cos Log Sample Luterval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
†							
64							
_							
 -65							
_							
66							
-							
67							
-							
68		ML: Dark greenish gray (Gley 2 4/1) SILT; some fine white (10 YR 8/1) gravel, little coarse sand (shells), stiff, slightly moist.		68-68.5	100	100/12	
		END OF SAMPLING	<u> </u>				



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-16A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: SPLIT SPOON, 4', 150 LB HAMMER Drill Type: HSA Date Started: 12/3/2007 12/3/2007 Boring/Well:MONITORING WELL Date Completed: Depth of Hole (ft): 45.00 Elevation (ft): 20.26 UTM NAD83 Gauged Depth to Water (ft):14.69 Northing (m): 868253.74 Easting (m):762728.02 Conditions: Gravel Buchanan, near Vet Clinic Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches _□0 NS: No lithology collected - -1 **⊢** -2 --3 -4 -5 -6 E -7 **⊢-8** <u></u>-9 F-10 F-11 -12 -13 -14 -- -15 - -16 - -17 - -18 -19 -- -20 -21 <u>--22</u> . -- -23 -- -24 -25 - -26 - -27 - -28 - -29 - -30 -31 - -32 - -33 **├** -34 -35 CL: Strong brown (7.5 YR 5/8) CLAY; little silt, trace black (10 YR 2/1) organics, trace brownish yellow (10 YR 6/8) silt; little fine sand at depth; stiff; medium plasticity, dry. 35-39 100 13/12 - **-**36 26/12 _ -- -37 25/12 SW: Dark brown (7.5 YR 3/4) to strong brown (7.5 YR 4/6) fine SAND; trace silt, loose; wet. --- -38 40/12 - -39 **- -40 ⊢** -41 41-45 100 18/12 SW: Strong brown (7.5 YR 4/6) fine SAND; loose, wet. -42 29/12 -43 57/12 CL: Strong brown (7.5YR 4/6) CLAY; striations of yellowish brown (10 YR 5/8) and black (10 YR 2/1) clay; trace fine sand, -44 49/12 E -45 SM: Strong brown (7.5 YR 4/6) SILT and fine SAND; some clay very moist.

END OF SAMPLING



				10-330-0202							
Log of	Borir	ng: N	1W-	16B		Geolo	gist: BII	L HA	RVEY	?	
Subcontra	actor: JA	ACA Al	ND SI	ERRA	Name of I	Oriller:EDI	JARDO S	ANTI	AGO		
Equipmen	nt: SPL	IT SPC	OON, 4	I', 150 LB HAMMER				D	rill T	ype: HSA	Λ
Date Star	ted: 11	/30/200	07	Date Completed: 12/3/2007	Depth of I	Depth of Hole (ft): 62.00 Boring					MONITORING WELL
Elevation	n (ft): 20	0.90		Northing (m): 868266.63 Easting	(m):762733	U'	TM NAD8	33	Gaug	ged Deptl	h to Water (ft):15.69
Conditi	ons: G	ravel									
Comme	nts:	Buch	nanan,	, near Vet Clinic							
Depth (ft)	USCS Log	Sample Interval		Description of Materials	,	Screening VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name
Γ0	<u> </u>		GW: 0	GRAVEL surface.			0-4	67		11/12	
- 1 -			little f CL-M	IL: Very dark grayish brown (10 YR 3/2) SIL' ine gravel and organics, dry. IL: Yellowish brown (10 YR 5/8) SILT and C ine gravel, trace red (7.5 YR 4/8) silt; low pla	LAY; some					23/12	
2 -	-: ±: =: =:									31/12	
3	 _:									21/12	
4	 		CL-M mediu	IL: Yellowish brown (10 YR 5/8) SILT and Complasticity; little coarse sand; little red (7.5 V	LAY; soft, YR 4/8) silt.		4-8	62		7/12	
5 -			CL: D CLAY white	Park bluish gray (Gley 2 4/1) to bluish gray (Grays come yellowish brown (10 YR 5/8) silt; trac (10 YR 8/1) gravel; soft, medium plasticity, compared to the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the s	eley 2 5/1) ce coarse lry.					6/12	
- -6										13/12	
7 -										14/12	
8			CLAY	Bluish gray (Gley 2 5/1) to dark bluish gray (G/z; little yellowish brown (10 YR 5/8) silt, trac oft; high plasticity, dry.			8-12	100		6/12	
9										12/12	
										15/12	
11 - 12			CLAY	Bluish gray (Gley 2 5/1) and yellowish brown /; some to little fine sand; becoming light blui at depth; very soft, high plasticity, dry.						15/12	
-			yellov	cluish gray (Gley 2 5/1), light bluish gray (Gley ish brown (10 YR 5/8) CLAY; some to little silt; medium plasticity, fairly soft. Dry.	y 2 4/1) and fine sand,		12-16	100		6/12	
13										11/12	
14 -										19/12	
15 -										17/12	



Log of Boring: MW-16B								
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
16	/// ⊒:		CL-ML: Yellowish brown (10 YR 5/8) and bluish gray (Gley 2 5/1) CLAY and SILT; little fine sand, slightly soft to medium		16-20	100	7/12	
17			stiffness; medium plasticity, dry.				18/12	
18 	— ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		CL-ML: Mottled bluish gray (Gley 2 5/1), yellowish brown (10 YR 5/8) and red (7.5 YR 4/8) CLAY and SILT; little fine sand; stiff, medium plasticity; dry.				23/12	
19 -	±:: =: ±						29/12	
20 -	; ;		CL-ML: Mottled yellowish brown (10 YR 5/8), bluish gray (Gley 2 6/1), some red (2.5 YR 4/8) CLAY and SILT; stiff, medium plasticity; dry.		20-24	100	12/12	
21 -	= : ± = : : :		p.m.t.t.y, a.y.				16/12	
							23/12	
23 -	±:: =:±:						26/12	
24 -			CL: Mottled bluish gray (Gley 2 6/1), yellowish brown (10 YR 5/8), little dark yellowish brown (10 YR 4/6) CLAY; little silt, trace fine sand; low plasticity, stiff, dry.		24-28	100	9/12	
25 -							16/12	
26 -							20/12	
27 -	= : ± - : : :		CL-ML: Mottled dark yellowish brown (10 YR 4/6) and light bluish gray (Gley 2 7/1) CLAY and SILT; little fine sand, trace black (10 YR 2/1) organics; stiff, low-medium plasticity, dry.				27/12	
28 -	 		CL-ML: Yellowish brown (10 YR 5/8) CLAY and SILT; trace fine sand, trace black (10 YR 2/1) organics; low to medium plasticity, dry.		28-32	100	12/12	
	±:=						19/12	
30	 : :						34/12	
31	±::		SP: Very pale brown (10 YR 7/4) fine SAND; very moist. CL-ML: Yellow (10 YR 7/8) and yellowish brown (10 YR 5/8), little black (10 YR 2/1) CLAY and SILT; stiff, low plasticity;				41/12	
32			little fine sand. Dry. CL: Yellow (10 YR 7/8) and yellowish brown (10 YR 5/8), little black (10 YR 2/1) CLAY; some fine sand, little silt; medium plasticity, fairly stiff, dry.		32-36	67	20/12	
33			CL: Strong brown (7.5 YR 5/8 4/6) CLAY; some silt, little black (10 YR 2/1) organics; low plasticity, stiff. Dry.				41/12	
34 - 35			SC: Strong brown (7.5 YR 5/8) to brown (7.5 YR 4/4) CLAY and fine SAND; slightly moist.				61/12	



FORT BUCHANAN PUERTO RICO

Log of	Log of Boring: MW-16B									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
- 555							45/12			
36 -			CL: Strong brown (7.5 YR 5/8) and yellowish red (5 YR 5/8) CLAY; little silt, little fine sand; fairly stiff, low plasticity, moist.		36-40	88	14/12			
37 -			SW: Strong brown (7.5 YR 5/6) fine SAND; trace silt, wet.	-			29/12			
38 -							37/12			
39 -							36/12			
			SW: Strong brown (7.5 YR 5/6) fine to coarse SAND; trace silt, loose; wet.		40-44	88	17/12			
			SM: Strong brown (7.5 YR 5/6) SILT and fine SAND; very				29/12			
42 -			moist. SM: Strong brown (7.5 YR 5/6) fine SAND; some silt, little clay; wet.	_			35/12			
43 -							53/12			
			SM: Strong brown (7.5 YR 5/6) fine SAND; some silt, wet. SM: Very dark gray (10 YR 3/1) to olive brown (2.5 Y 4/3) fine	-	44-48	83	37/12			
45 -	<u>: : : : : : : : : : </u>		to coarse SAND; some red (2.5 YR 4/8) silt; wet. CL-ML: Olive yellow (2.5 Y 6/6), yellow (2.5 Y 7/6) and black (10 YR 2/1) SILT and CLAY; some mottling, stiff, low plasticity, dry.				28/12			
46 -	- : ±.		parately, aly.				26/12			
47 -	H::						27/12			
48 -	H::		CL-ML: Olive yellow (2.5 Y 6/6) and yellowish brown (10 YR 5/6) CLAY and SILT; very stiff, low plasticity; dry.	_	48-52	83	15/12			
49 -			SW: Brown (7.5 YR 4/3) fine SAND. ML: Mottled olive yellow (2.5 Y 6/6), strong brown (7.5 YR 5/6) and brownish yellow (10 YR 6/6) SILT; some clay, stiff.				22/12			
50 -			GM: Yellow (10 YR 7/6) and very pale brown (10 YR 7/4) SILT; some fine gravel, stiff; slightly moist.				78/12			
51 -			GP: Very pale brown (10 YR 7/4) coarse GRAVEL; some coarse sand; trace silt; wet.				32/12	CARBONATE ZONE		
52 -			GM: Very pale brown (10 YR 7/4) coarse GRAVEL, coarse SAND, and SILT; wet.	-	52-56	100	18/12			
53 -			ML: Pale yellow (2.5Y 8/4) SILT; fairly soft, moist.				32/12			
54							100/12			



FORT BUCHANAN PUERTO RICO

	_							
Depth	USCS Log	ample	Description of Materials	Screening VOC	Depth	Recovery	# Blows per	Remarks/Sample Name
(ft)		L S		(ppm)	(ft)	(%)	# Inches	
55 56 57 58 59 60 61			ML: Pale yellow (2.5Y 8/4) and very pale brown (10 YR 7/4) SILT; little fine gravel, stiff; mostly dry. ML: Light greenish gray (Gley 1 7/1) SILT; little fine gravel, very stiff; dry. END OF SAMPLING		56-58	100	75/12	



	410 336 0202		ı					
Log of Boring: MW-	·17A		Geologist: BILL HARVEY					
Subcontractor: JACA AND SI	ERRA	Name of Dri	iller:EDU	JARDO S.	ANTI	AGO		
Equipment: SPLIT SPOON,	4', 150 LB HAMMER				Dı	rill Typ	e: HSA	1
Date Started: 12/6/2007	Date Completed: 12/6/2007	Depth of Ho	le (ft):	46.00		Boring/V	Well:M	ONITORING WELL
Elevation (ft): 15.92	Northing (m): 868669.72 Easting	(m):763170.59	9 U	ΓM NAD8	3	Gauged	l Deptl	n to Water (ft): 7.32
Conditions: Asphalt					·			
	, in commissary lot							
Depth (ft) USCS Log Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Package Internal Pac	Description of Materials		VOC (ppm)	Depth (ft)	Recov	very	Blows per Inches	Remarks/Sample Name
1234567891011121314151617181920212223242526272829303132333435363738383940414243444546 GRA' CL-A' CL	Striated yellowish brown (10 YR 5/8), brownis /6), and very dark grayish brown (10 YR 4/2) \$ slightly moist. Very pale brown (10 YR 7/4) SILT; little fine ge sand; moist. Yerlowish brown (10 YR 5/8) SILT; little clay, fairly stiff, slightly moist. Striated yellowish brown (10 YR 5/8) and dark in (10 YR 4/2) SILT; trace coarse gravel, moist. Very pale brown (10 YR 7/4) coarse SAND, S Very pale brown (10 YR 7/4) coarse SAND, S VEL; very moist. IL: Striated yellowish brown (10 YR 5/8), brown (10 YR 4/4), more silved yellowish brown (10 YR 4/4), more silved yellowish brown (10 YR 4/4), more silved yellowish trace coarse sand. Mois OF SAMPLING	gravel and trace coarse grayish ILT, and fine whish yellow SILT and		36-40 40-44	81	21/ 42/ 45/ 13/ 44/ 26/	7/12 /12 /12 /12 /12 /12 /12 /12 /12	



_				+10 330 0202							
Log of	Borir	ng: N	ΛW-	17B		Geologist: BILL HARVEY					
Subcontra	actor: JA	ACA A	ND SI	ERRA	Name of D	riller:EDU	JARDO S	ANTI	AGO		
Equipmen	nt: SPL	IT SP	OON, 4	4', 150 LB HAMMER				D	rill T	ype: HSA	A
Date Star	ted: 12	2/4/200	7	Date Completed: 12/5/2007	Depth of H	h of Hole (ft): 65.00 Boring/Well:BOREHOLE				BOREHOLE	
Elevation	(ft):			Northing (m): 0 Easting	(m):0	U'	TM NAD8	33	Gaug	ged Deptl	h to Water (ft): NA
Conditi	ons: A	sphalt	į								
Comme	nts:	Buc	hanan	, in Commissary lot							
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	Reco	ا `‰	# Blows per # Inches	Remarks/Sample Name
-0			GW:	Asphalt underlain with coarse bluish gray (GleVEL. Dry.	ey 2 6/1)		0-4	79		44/12	
1	<u> </u>			IL: Dark yellowish brown (10 YR 3/6) SILT a	nd CLAY;					19/12	
2				lasticity, stiff, dry.						24/12	
3										25/12	
4	工: 工:		CI -M	IL: Yellowish brown (10 YR 5/6) SILT and Cl	LAY.		4-8	79		5/12	
- 5	ΞΞ		striati clay;	ons of yellowish red (5 YR 4/6) silt and white trace fine gravel, trace black (10 YR 2/1) organ	(10 YR 8/1)					9/12	
- 6	工:: <u>:</u> :::エ		Stiff, I	low plasticity, dry.							
7	Ξ:									19/12	
-	二: 工 工: :									20/12	
			3/6) S	IL: Striated white (10 YR 8/1) CLAY and dark ILT; some yellowish brown (10 YR 5/8) striat			8-12	100		10/12	
9 -	Ξ:		dry.							19/12	
10	Ξ: <u>Τ</u>									30/12	
11	 _ :									36/12	
12	工::		CL-M	IL: Striated white (10 YR 8/1) CLAY and dark	c red (7.5 YR		12-16	100		18/12	
- 13			3/6) S pale r	SILT; little yellowish brown (10 YR 5/8) silt ared (10 R 6/4) clay; low to medium plasticity of earns, remainder dry.	nd clay; trace					47/12	
- 14			wet se	cans, remander dry.							
- 15	<u> </u>									61/12	
-	- : <u>+</u> - : :									52/12	
16 -			(10 Y	IL: Striated white (10 YR 8/1) CLAY and yell-R 5/8) and dark red (7.5 YR 3/6) SILT; lenses	(trace) of		16-20	100		19/12	
17 -	Ξ:			o coarse sand; trace black organics; stiff, low p n sand lenses).	olasticity, dry					40/12	
18	二: 工 十:-									39/12	
19										56/12	
20	工::		CI -M	IL: Striations of white (10 YR 8/1) and strong	brown (7.5		20-24	100		23/12	
- 21			YR 4/	(6) CLAY and SILT; some yellowish brown (1 ace fine sand, trace black (10 YR 2/1) organic	0 YR 5/8)					37/12	
22	ΞΞ									44/12	



FORT BUCHANAN PUERTO RICO

Log of	Bori	1g: N	/IW-17B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
23							46/12	
24 -			ML: Strong brown (7.5 YR 4/6) and/or yellowish red (5 YR 4/6) SILT; some clay, little yellowish brown (10 YR 5/8) silt, stiff,		24-28	83	25/12	
25 -			low plasticity, mostly dry with some wet seams.				60/12	
26 27							67/12	
28							56/12	
29			ML: Yellowish red (5 YR 4/6) SILT; some clay; low plasticity, stiff; slightly moist.		28-32	100	47/12	
30							57/12 87/12	
- 31							82/12	
32	<u> </u>		CL-ML: Mottled yellowish brown (10 YR 5/8) SILT and CLAY with black (10 YR 2/1) organics; stiff, dry. ML: Yellowish red (5 YR 4/6) SILT; some clay, little fine sand		32-36	100	21/12	
-33			ata top of interval; stiff, low plasticity, mostly dry.				45/12	
34							66/12	
-35							48/12	
36	: 		CL-ML: Striated very pale brown (10 YR 7/4), grayish brown (10 YR 5/2) and yellowish brown (10 YR 5/6) SILT and CLAY; fairly stiff, mostly dry.		36-40	100	15/12	
37 -			ML: Striated very pale brown (10 YR 7/4), grayish brown (10 YR 5/2), yellowish brown (10 YR 5/6) to dark yellowish brown (10 YR 4/4) SILT; little clay, little black (10 YR 2/1) silt; fairly stiff, mostly dry.				21/12	
38 -			GM: Very pale brown (10 YR 7/4) coarse GRAVEL and coarse SAND; some dark yellowish brown (10 YR 4/4) silt; wet.				61/12	CARBONATE ZONE
39 -							100/12	
40			GP: Very pale brown (10 YR 7/4) coarse SAND and coarse GRAVEL; little silt, very moist.		40-44	83	46/12	
							39/12	
42 -			ML: Striated yellowish brown (10 YR 5/8) and very pale brown	-			18/12	
43 -			(10 YR 7/3) SILT; stiff, mostly dry.				16/12	
44 -			ML: Greenish gray (Gley 1 6/1), some yellowish brown (10 YR 5/8) SILT; little clay, stiff, dry.		44-48	100	22/12	
45 -							35/12	
46 -							46/12	
47							60/12	
48			ML: Greenish gray (Gley 1 6/1) SILT; trace white (10 YR 8/1) fine gravel at depth; very stiff, dry.		48-52	100	29/12	
49 							46/12	
 50				I	l	1	1	



FORT BUCHANAN PUERTO RICO

L05 01	Log of Bolling. WW-17B											
Depth (ft)	USC Log	s -	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name			
- 51 - 52 - 53 - 54				ML: Greenish gray (Gley 1 6/1) SILT; some fine white (10 YR 8/1) gravel (shells?); trace clay, very stiff, dry. ML: Greenish gray (Gley 1 6/1) SILT; some fine white (10 YR 8/1) gravel (shells?) stiff, mostly dry. ML: Greenish gray (Gley 1 6/1), some light greenish gray (Gley 1 8/1) SILT; trace to little dark yellowish brown (10 YR 4/4) silt, trace fine gravel; stiff, mostly dry.		52-56	100	75/12 100/12 68/12 49/12 65/12				
55 - 56 - 57 - 58	⊠ ⊠			GM: Light greenish gray (Gley 1 8/1) SILT and fine white (10 YR 8/1) GRAVEL (shells); little clay, little coarse sand; slightly moist.		56-58	100	100/12				
58 - 59 - 60 - 61				ML: Striated bluish gray (Gley 2 6/1) and yellowish brown (10 YR 5/8) SILT; some fine gravel, dry. ML: Bluish gray (Gley 2 6/1) SILT; some dark yellowish brown (10 YR 4/4) silt, stiff, dry. SM: Bluish gray (Gley 2 6/1) SILT and coarse SAND; dense/stiff; slightly moist. SM: Bluish gray (Gley 2 6/1) SILT and coarse SAND (shell fragments); dense, moist.		58-60 60-62	94	43/12 57/12 35/12 100/12				
- 62 - 63 - 64 - 65				OL: Bluish gray (Gley 2 6/1) and black (10 YR 2/1) SILT; some coarse sand, moist. ML: Dark bluish gray (Gley 2 4/1) SILT; some coarse sand, moist.		63-65	68	73/12 100/12				



FORT BUCHANAN PUERTO RICO

	TOERTO RICO									
Log of Bori	ng: MV	W-18A		Geologist: BILL HARVEY						
Subcontractor: J	ACA AND	SIERRA	Name of Dri	Driller:EDUARDO SANTIAGO						
Equipment: SP	LIT SPOO	N, 4', 150 LB HAMMER				Dı	rill T	ype: HSA	Λ	
Date Started: 1	2/17/2007	Date Completed: 12/17/2007	Depth of Ho	le (ft):	45.00		Borir	ng/Well:M	MONITORING WELL	
Elevation (ft): 1	9.45	Northing (m): 868072.43 Easting	(m):763428.8°	7 U	ΓM NAD8	3	Gaug	ged Deptl	n to Water (ft): 13.85	
Conditions: A	sphalt									
Comments: Buchanan, in Army Reserve parking lot										
Depth (ft) USCS Log	Sample Interval	Description of Materials		V/(W ' -		Recovery (%) # Blows per # Inches		Remarks/Sample Name		
- 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 38 39 30 31 32 33 34 35 36 37 38 38 39 30 31 32 33 34 35 36 37 38 38 39 30 31 32 33 34 35 36 37 38 38 38 38 39 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 33 34 35 36 37 38 38 38 38 38 38 38 38 38 38 38 38 38 38 38 38 38 38 38 40 41 42 43 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 44 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46 46	G gg to m	M: Very pale brown (10 YR 7/4) coarse GRAVEL ravel and coarse sand, some silt; dense, wet. M: Yellow (10 YR 7/6) and very pale brown (10 Ye coarse GRAVEL and SILT; little coarse sand, derioist. M: Yellow (10 YR 7/6) to brownish yellow (10 Ye not fine white (10 YR 8/1) GRAVEL; little coarse sery moist. P: Very pale brown (10 YR 7/4) fine GRAVEL; scavel, little coarse sand; little silt. Wet.	(R 7/3) fine nse; very R 6/8) SILT; sand; dense,		35-39 40-44	100		58/12 78/12 100/12 21/12 100/12		

END OF SAMPLING



TOERTO RICO												
Log of	Borir	ıg: M	[W-	18B		Geologist: BILL HARVEY						
Subcontra	ctor: JA	CA AN	ID SI	ERRA	Name of I	Oriller:EDU	JARDO S	ANTI	AGO			
Equipmen	t: SPL	IT SPO	ON,	4', 150 LB HAMMER				D	rill T	ype: HSA	Λ	
Date Start	ed: 12	/13/200	7	Date Completed: 12/17/2007	Depth of Hole (ft): 62.00 Born					g/Well:M	ONITORING WELL	
Elevation	(ft): 19	0.57		Northing (m): 868070.5 Easting	(m):763439	.44 U	TM NAD8	33	Gaug	ged Deptl	n to Water (ft): 13.99	
Conditio	ons: A	sphalt										
Commer	nts:	Buch	anan	, in Army Reserve Lot								
Depth (ft)	USCS Log	Sample Interval		Description of Materials		Screening VOC (ppm)	Depth (ft)	Reco	%)	# Blows per # Inches	Remarks/Sample Name	
Γ°			FILL:	Asphalt (FILL)			0-4	69		45/12		
1	⊠ ⊠		GM: YR 8/	Yellowish brown (10 YR 5/8) SILT and coarse (1) GRAVEL; dense, dry.	white (10					10/12		
-	= : <u>T</u>		CL-M	IL: Gray (10 YR 6/1) and red (2.5 YR 4/6), tra n (10 YR 5/8) CLAY and SILT; stiff, low plast	ce yellowish					10/12		
2	 			. (,,,.					20/12		
3	_									26/12		
-4				Gray (10 YR 6/1) and red (2.5 YR 4/6) SILT; s	some clay,		4-8	100		16/12		
- 5			little 1	ine sand, stiff; dry.						26/12		
- 6										38/12		
- 7				Yellowish brown (10 YR 5/8) SILT; little medigray (10 YR 6/1) clay; stiff, dry.	ium sand,					38/12		
-										36/12		
			SILT.	Mottled yellowish brown (10 YR 5/8) and gray some clay; to gray and red (2.5 YR 4/6) mottl	(10 YR 6/1) led SILT,		8-12	100		17/12		
9			some	clay; low plasticity, stiff; mostly dry.						35/12		
10										41/12		
11										38/12		
-12	<mark> </mark> -::=:		CL-M	IL: Gray (10 YR 6/1) SILT and CLAY; little d 6) silt; trace fine sand, fairly soft; low-mediun	ark red (2.5		12-16	100		10/12		
13	 0000		Dry. OL: N	Mottled gray (10 YR 6/1), yellowish brown (10	YR 5/8),					16/12		
14	1 1 1 1			red (2.5 YR 4/6) and trace black (10 YR 2/1) S and, trace clay. Dry.	oilli; some					23/12		
- 15										38/12		
- 16	uuuu nhnn		CL-M SILT	IL: Gray (10 YR 6/1) and yellowish brown (10 and CLAY; stiff, low plasticity, dry.	YR 5/8)		16-20	100		9/12		
- 17			little t to slig	Gray (10 YR 6/1) and yellowish brown (10 YR o some clay, trace organics, trace fine sand; fathly moist; becoming yellowish brown and lig	irly soft; dry					15/12		
10			gray (Gley 1 7/1) at depth.								
18 -										23/12		
-19												



FORT BUCHANAN PUERTO RICO

Log or	Bonn	1 <u>g</u> . I	/W-18B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
20	1		OL: Light greenish gray (Gley 1 7/1) and yellowish brown (10 YR 5/8) SILT; little clay; trace black (10 YR 2/1) organics, trace white (10 YR 8/1) silt; stiff, dry.		20-24	100	28/12	
21							24/12	
22							31/12	
						100	39/12	
25			OL: Light greenish gray (Gley 1 7/1) SILT; trace black organics, trace clay. Dry.		24-28	100	13/12	
- 26		•	GM: Light greenish gray (Gley 1 7/1) fine to fine to coarse GRAVEL and SILT; trace yellowish brown (10 YR 5/8) silt, trace clay; stiff/dense, slightly moist.				33/12	CARBONATE ZONE
- 27							47/12	
28			ML: Light greenish gray (Gley 1 7/1) SILT; some to little fine to coarse gravel, medium stiffness; dry.		28-32	100	21/12	
29							100/12	
30			GM: Light greenish gray (Gley 1 7/1) SILT and fine white (10 YR 8/1) GRAVEL; stiff/dense, mostly dry.					
31 -								
32 		_	GP: Very pale brown (10 YR 7/4) coarse GRAVEL; some fine gravel, wet.		32-36	100	100/12	
33	KI L							
34 - 35								
36					36-40	100	40/12	
- 37			GM: Very pale brown (10 YR 7/4) fine to coarse GRAVEL; some silt, little coarse sand; wet.		30-40	100	65/12	
- 38		-	ML: Yellow (10 YR 7/6) SILT; little to some (at depth) coarse sand; little fine gravel; dense, very moist.				100/12	
39								
-40		-	GM: Very pale brown (10 YR 7/4) fine GRAVEL and SILT; wet.		40-44	100	66/12	
41			ML: Yellow (10 YR 7/6) to brownish yellow (10 YR 6/8) SILT; little fine gravel, moist.				100/12	
42			GM: Very pale brown (10 YR 7/4) coarse GRAVEL and SILT; little coarse sand, wet.					



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-18B											
Depth (ft)	US0 Lo	CS g	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
					(ррш)			" Hieries			
-43	⊠ : ⊠ :	⊠ : ⊠ :									
-44		⊠ ⊠		GM: Very pale brown (10 YR 7/4) fine GRAVEL and SILT; some coarse sand, trace clay; dense, very moist to wet.		44-48	100	100/12			
45	⊠ ⊠	⊠ : ⊠ ⊠		some coarse sand, nace eray, dense, very moist to wee.							
46	. ⊠ : ⊠ :										
-47	⊠:⊠:	⊠ ⊠ :									
-48		×		ML: Greenish gray (Gley 1 6/1) SILT; some fine sand, stiff; slightly moist.		48-52	100	28/12			
49 -				ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; little clay; stiff; dry.				56/12			
50								67/12			
51 -								75/12			
52				ML: Yellowish red (5 YR 4/6), greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; stiff, dry.		52-56	75	30/12			
53				yonowshi otomi (to Tresto) shirt, shirt, ary.				51/12			
54				ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; little to trace white (10 YR 8/1) silt, trace fine gravel; stiff, dry.				55/12			
55								94/12			
56				ML: Greenish gray (Gley 1 6/1) SILT; some very pale brown (10 YR 7/4) fine gravel; little yellowish brown (10 YR 5/8) silt; very		56-58	100	100/12			
57				moist.							
58				GM: Greenish gray (Gley 1 6/1) little very pale brown (10 YR 7/4) fine GRAVEL, SILT, and coarse SAND; very moist to wet.		58-60	100	100/12			
59	⊠ : ⊠	⊠ ⊠		" 1) The Grant EL, Sill I, and coarse Sand, very moist to wet.							
60	× I	×		ML: Bluish gray (Gley 2 6/1) and yellowish brown (10 YR 5/8) SILT; trace fine gravel, very stiff; mostly dry.		60-62	100	75/12			
- -61				,				100/12			
-62				END OF SAMPLING							



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-19A Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: SPLIT SPOON, 2', 150 LB HAMMER Drill Type: HSA Date Started: 11/28/2007 11/29/2007 Boring/Well:MONITORING WELL Date Completed: Depth of Hole (ft): 38.00 Elevation (ft): 28.31 UTM NAD83 Gauged Depth to Water (ft): 4.55 Northing (m): 867330.27 Easting (m):763313.61 Conditions: Grass Buchanan, near Lake Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches Г0 NS: No lithology collected - -1 - -2 **--** -3 -4 -5 -- -6 -7 - -8 **--9** -- -10 - -11 - -12 - -13 -14 - -15 -16 - -17 - -18 - -19 -- -20 - -21 - -22 **-- -23** - -24 -25 - -26 - -27 - **-**28 - -29 - **-**30 30-32 92 30/12 CL: Mottled greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/6), little red (2.5 YR 4/6) CLAY; trace fine white (10 YR 8/1) gravel; stiff, moist. CARBONATE ZONE - -31 \boxtimes 100/12 ... ⊠ -32 GM: Very pale brown (10 YR 7/4) coarse SAND and fine -- -33 GRAVEL; some silt, trace clay; very moist to wet 33-35 100 29/12 GP: Very pale brown (10 YR 7/4) coarse SAND and fine to coarse GRAVEL; little silt, wet. - -34 100/12 **-- -35** -36 36-38 100 74/12 GM: Yellowish brown (10 YR 5/6) and very pale brown (10 YR 7/4) coarse SAND, coarse GRAVEL, and SILT; dense, very -37 52/12 L₋₃₈ CL-ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/6) CLAY and SILT; stiff, low plasticity, dry. END OF SAMPLING



				+10-336-6202 								
Log of	Borir	ng: N	ΛW-	19B		Geologist: BILL HARVEY						
Subcontra	ctor: JA	CA A	ND SI	ERRA	Name of Driller:EDUARDO SANTIAGO							
Equipmen	t: SPL	IT SP	OON,	4', 150 LB HAMMER				D	rill T	ype: HSA	Λ	
Date Start	ed: 11	/27/20	07	Date Completed: 11/28/2007	Depth of H	lole (ft):	64.00		Borir	ng/Well:M	MONITORING WELL	
Elevation	(ft): 28	3.25		Northing (m): 867329.04 Easting	(m):763325.	.48 U	TM NAD8	33	Gau	ged Deptl	n to Water (ft): 4.31	
Condition	ons: G	rass										
Commer	nts:	Buc	hanan	, near Lake								
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name	
Γ°	Ξ:			IL: Dark brown (10 YR 3/3) CLAY and SILT	(organics);		0-4`	58		13/12		
1			CL: Y medit OH: V	coarse gravel. Yellowish brown (10 YR 5/6) CLAY; some silt 1 sand; trace organics, trace white (10 YR 8/1) Very dark grayish brown (10 YR 3/2) CLAY; l	í) clay. Dry. nighly plastic;					9/12		
2			some	silt, little fine to coarse sand; little coarse grav	el; moist.							
-										18/12		
3										13/12		
4										40/40		
-			4/1) to	Yellowish brown (10 YR 5/6) and dark bluish go bluish gray (Gley 2 5/1) CLAY; highly plastiand, little organic matter. Moist.			4-8	63		13/12		
5			iine s	and, little organic matter. Moist.						8/12		
-	*.*.*.*.		CW. 1	Light brownish gray (10 YR 6/2) medium SAN	ID: wat							
6				Vellowish brown (10 YR 5/6) and bluish gray (11/12		
7				Y; soft, highly plastic; moist.						40/40		
-										13/12		
8			CL: V	Very dark grayish brown (10 YR 3/2) CLAY; to	race fine		8-12	83		3/12		
-			sand,	moist. Light brownish gray (10 YR 6/2) fine SAND; v	//							
- -9			OH:	Yellowish brown (10 YR 5/6) and bluish gray (Y; soft, highly plastic; trace fine sand and organ	Gley 2 5/1)					8/12		
10				Black (10 YR 2/1) CLAY; soft, highly plastic, Yellowish brown (10 YR 5/6) and bluish gray (10/12		
-			CLA	Y and SILT; soft, highly plastic; little fine sand	l, moist.					10/12		
11										13/12		
-												
12				Yellowish brown (10 YR 5/6) and bluish gray (Y; some silt, some fine sand; trace organics; fa			12-16	42		8/12		
13				im plasticity, very moist.	, 501.,					11/10		
-										11/12		
14										15/12		
-												
15										13/12		
- 16							16.20	100		7/12		
-			SC-S1 7/1) C	M: Yellowish brown (10 YR 5/6), trace light g CLAY, SILT, and fine SAND; soft, very moist.	ray (10 YR		16-20	100		7/12		
17												



Log of	Borin	ıg: N	AW-19B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
							10/12	
18	.1.1.						10/10	
-			SM: Yellowish brown (10 YR 5/6) SILT and fine SAND; very soft, loose; wet.				12/12	
19 -			CL-ML: Yellowish brown (10 YR 5/6) to red (2.5 YR 4/6) with mottles of light gray (10 YR 7/1) CLAY and SILT; stiff, medium plasticity; fairly dry.				17/12	
20	===== ===============================		CL-ML: Red (2.5 YR 4/6), bluish gray (Gley 2 5/1), and yellowish brown (10 YR 5/6) mottled CLAY and SILT; little to		20-24	67	10/12	
21	二: 王 王: : :: 王		some fine sand, trace fine gravel; trace weak red (purplish) (10 R 5/2) clay; fairly stiff, low plasticity; moist.				19/12	
22 -	:::: :::::						24/12	
23 -	工::: :::工 ::::::::::::::::::::::::::::						28/12	
24 -			CL: Striated/mottled red (2.5 YR 4/6), bluish gray (Gley 2 5/1), and yellowish brown (10 YR 5/6) CLAY; some silt; trace fine sand; stiff, medium plasticity. Moist.		24-28	100	10/12	
25			SM: Yellowish brown (10 YR 5/6), some light gray (10 YR 7/2) fine SAND and SILT; some clay, moist to wet.				20/12	
	::::::::::::::::::::::::::::::::::::::		CL-ML: Light gray (10 YR 7/2) and yellowish brown (10 YR 5/6) CLAY and SILT; stiff, low plasticity; slightly moist. SM: Yellowish brown (10 YR 5/6) and light gray (10 YR 7/2) fine SAND, some silt; moist.				20/12	
	±::= =::=		CL-ML: Yellowish brown (10 YR 5/6), light gray (10 YR 7/2), and red (2.5 YR 4/6) CLAY and SILT; trace fine sand, stiff; low plasticity, slightly moist.				23/12	
28 	 		CL-ML: Red (2.5 YR 4/6), light gray (10 YR 7/2) and yellowish brown (10 YR 5/6) CLAY and SILT; trace black (10 YR 2/1)		28-32	100	6/12	
29 -	- : : 士: -		organics, trace fine sand; stiff, low-medium plasticity; mostly dry.				18/12	
30 -	:::: ::::::::::::::::::::::::::::::::						24/12	
31 -	±:: =: ±						34/12	
32	工		OH: Mottled red (2.5 YR 4/6), bluish gray (Gley 2 5/1), yellowish brown (10 YR 5/6) and black (10 YR 2/1) CLAY;		32-34	100	15/12	
33	<u>M</u> M	•	trace coarse sand, stiff, medium plasticity. Dry. GM: Very pale brown (10 YR 7/4 8/3) coarse SAND, fine				100/12	CARBONATE ZONE
-			GRAVEL, and SILT; moist.					
34			GP: Light gray (10 YR 7/2) and very pale brown (10 YR 7/4) coarse SAND, fine to coarse GRAVEL, and SILT; little clay;		34-38	100		
35			dense, moist to wet.				100/12	
-							100/12	
36	⊠ ⊠							
27								
37								
38								



FORT BUCHANAN PUERTO RICO

Log of	Borir	ıg: N	MW-19B					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
39			GW: Very pale brown (10 YR 7/4) coarse GRAVEL; wet. ML: Yellowish brown (10 YR 5/6) and gray (10 YR 6/1) SILT; fairly stiff, mostly dry.		38-42	100	13/12 31/12	
40			ML: Brownish yellow (10 YR 6/6) SILT; some fine gravel and coarse sand; slightly moist.				62/12	
41			GM: Brownish yellow (10 YR 6/6) SILT and very pale brown (10 YR 7/4) fine to coarse GRAVEL; dense, moist.				100/12	
42 -			GP: Very pale brown (10 YR 7/4) fine to coarse GRAVEL; some coarse sand, little silt; wet.		42-44	100	100/12	
43 -								
44 -			GP: Yellow (10 YR 7/6) and very pale brown (10 YR 7/4) fine to coarse GRAVEL and coarse SAND; little silt, trace dark reddish brown (5 YR 3/4) gravel. Wet.		44-46	100	81/12	
45 -							100/12	
46 -			GP: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) coarse SAND and fine to coarse GRAVEL; trace silt, wet.		46-48	100	100/12	
47 -								
⊢ -48 -			SW: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) coarse SAND; some fine to coarse gravel, trace silt. Wet.		48-50	100	89/12	
49 -							100/12	
50 - 51			GP: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) coarse SAND and fine GRAVEL; little to trace silt. Wet.		50-52	100	100/12	
52						400	400.44	
- 53			GP: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) coarse SAND and fine GRAVEL; trace silt, wet.		52-54	100	100/12	
- 54			GP: Very pale brown (10 YR 7/4) coarse GRAVEL; some coarse		54-56	100	100/12	
- 55			sand, little silt. Wet.					
- 56			GP: Very pale brown (10 YR 7/4) coarse GRAVEL; little coarse		56-58	100	64/12	
- 57			SM: Very pale brown (10 YR 7/3, 7/4) fine SAND and SILT; wet.				100/12	
- 58			SM: Very pale brown (10 YR 7/4) fine SAND; some silt, wet.		58-60	100	100/12	
59								



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Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
	23 2		SM: Very pale brown (10 YR 7/4) fine SAND and SILT; little fine gravel, very moist. GP: Very pale brown (10 YR 7/4) coarse GRAVEL; some coarse sand, little silt; very moist. ML: Dark yellowish brown (10 YR 4/6) SILT; little to trace fine sand, slightly moist.		60-62 62-64	100	100/12 80/12 100/12	
			END OF SAMPLING					



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: MW-20 Name of Driller:FLOR RIVERA Subcontractor: GEOCIM Equipment: SPLIT SPOON, 4', 150 LB HAMMER Drill Type: HSA Date Started: 4/22/2008 Boring/Well:MONITORING WELL 4/23/2008 Depth of Hole (ft): 51.00 Date Completed: Elevation (ft): 23.90 Easting (m):762620.3149 Gauged Depth to Water (ft):14.25 Northing (m):867822.8646 UTM NAD83 Conditions: Grass in enclosed area Buchanan Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 FILL: FILL - -2 - **-**3 -4 4-8 0 9/12 UNKNOWN: No Recovery -5 9/12 - -6 8/12 -7 11/12 -8 CL: Light bluish gray (Gley 2 7/1) to bluish gray (Gley 2 6/1) CLAY; little silt; high plasticity, soft. Mostly dry. 8-12 100 6/12 -9 10/12 - -10 17/12 CL: Yellowish brown (10 YR 5/8) with mottles of gray (10 YR 6/1) and light bluish gray (Gley 2 7/1) CLAY; some silt, trace coarse sand; medium plasticity, soft; slightly moist. -11 20/12 -12 CL: Light bluish gray (Gley 2 7/1) and yellowish brown (10 YR 5/8) CLAY; little silt, trace medium sand; medium plasticity, medium stiff. Dry. 12-16 100 9/12 - -13 15/12 25/12 -15 33/12



FORT BUCHANAN PUERTO RICO

Depth Log See Fee Description of Materials Streeming Depth Recovery Per Inches Per Inch	Log of	Borir	ıg: N	MW-20					
C. Horomads value (1 VR A0), some light bluish gray (Gley 2 value) 100 1012 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 1002 10	_	USCS Log	Sample Interval	Description of Materials	VOC	Depth	1	per	Remarks/Sample Name
- 18 - 19 - 19 - 20 - 21 - 20 - 21 - 22 - 21 - 22 - 22 - 23 - 24 - 25 - 24 - 25 - 26 - 27 - 28 - 28 - 28 - 29 - 20 - 20 - 21 - 21 - 22 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 28 - 29 - 29 - 20 - 20 - 20 - 20 - 20 - 20 - 20 - 20	16			2 7/1) CLAY; some silt, stiff; little black silt and fine gravel; low		16-20	100	10/12	
1920212121212121212223242324242524242524272828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282828282930313132323232323232333434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434343434	17 -			to medium piasticity. Dry.				20/12	
CL. Strong brown (7.5 YR. 4/6) trace light bluish gray (Glsy 2 7/1) CLAY; some silt, little black fine gravel (iron?); stiff; medium plasticity. SC. Strong brown (7.5 YR. 4/6) CLAY and fine SAND; soft, most. CL.Mt. Strong brown (7.5 YR. 4/6) CLAY and SILT; trace medium sand; soft, most. CL. Strong brown (7.5 YR. 4/6) CLAY; little fine sand, soft; medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; little fine sand, soft; medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; little fine sand, soft; medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; little fine sand, soft; medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; little fine sand, soft; medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; little fine sand, soft; medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; some silt, trace fine white gravel; stiff, low to medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; some fine to medium sand; very most. CL. Strong brown (7.5 YR. 4/6) CLAY; some silt, stiff, medium plasticity, most. CL. Strong brown (7.5 YR. 4/6) CLAY; some silt, stiff, medium plasticity, most. SC. Strong brown (7.5 YR. 4/6) CLAY; trace silt and fine sand, medium plasticity, soft, most. SC. Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand, medium plasticity, soft, most. CL. Mil. Pale brown (10 YR 5/4) CLAY; and SILT; trace light blush gray (Clay 27) (CLAY); soft, very most to wet. CL. Mil. Pale brown (10 YR 5/3) CLAY and SILT; trace light blush gray (Clay 27) (CLAY); soft, very most to wet.	18 							26/12	
CL: Strong brown (7.5 YR 4/6) CLAY and fine SAND; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist, with plasticity, trace light bluish gray (Gley 2.7/1) clay, slightly moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, trace fine white gravel strong prown (7.5 YR 4/6) CLAY; some silt, trace fine white gravel strong prown (7.5 YR 4/6) CLAY; some silt, strong brown (7.5 YR 4/6) CLAY; some silt, striff, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, striff, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, striff, medium plasticity, moist. CL: Vallowish brown (10 YR 5/4) fine SAND; some clay, loose; wet. CL: Vallowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL: Wall: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2.7)1 clay, striff, medium plasticity, slightly bluish gray (Gley 2.7)1 clay, striff, medium plasticity, slightly bluish gray (Gley 2.7)1 clay, striff, medium plasticity, slightly bluish gray (Gley 2.7)1 clay, striff, medium plasticity, slightly bluish gray (Gley 2.7)1 clay, striff, medium plasticity, slightly bluish gray (Gley 2.7)1 clay, striff, medium plasticity, slightly	19 -							33/12	
SC: Strong brown (7.5 YR 4/6) CLAY and fine SAND; soft, moist. -23 CL-ML: Strong brown (7.5 YR 4/6) CLAY, little silt; soft, medium plasticity, moist and plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little fine sand, soft; medium plasticity, moist and plasticity, moist and plasticity, moist and plasticity, moist and plasticity, moist and plasticity, moist and plasticity, moist and plasticity, trace light bluish gray CL-ML: Strong brown (7.5 YR 4/6) CLAY; some silt, trace fine white gray and silt. T; soft; medium plasticity; moist; black fine gravel at 10°. CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. SC: Strong brown (7.5 YR 4/6) fine SAND; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand, medium plasticity, soft, moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, every moist to wet. CL-ML: Pale brown (10 YR 6/4) CLAY; trace light bluish gray (Gley 27) (lody, stiff; medium plasticity, silightly) CL-ML: Pale brown (10 YR 6/4) CLAY; trace light bluish gray (Gley 27) (lody, stiff; medium plasticity, silightly)				7/1) CLAY; some silt, little black fine gravel (iron?); stiff,		20-24	100	14/12	
SC: Strong brown (7.5 YR 4/6) CLAY and fine SAND; soft, moist. 18/12 -24	21 -							18/12	
CL-ML: Strong brown (7.5 YR 4/6) CLAY and SILT; trace medium sand; soft, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little fine sand, soft; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, trace fine white gravel; stiff, low to medium plasticity, trace light bluish gray (Gley 2 7/1) clay, slightly moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, trace fine white gravel; stiff, low to medium plasticity; moist; black fine gravel at 10°. CL: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; medium plasticity; moist; black fine gravel at 10°. CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist; black fine gravel at 10°. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist; black fine gravel at 10°. SC: Strong brown (7.5 YR 4/6) CLAY; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist low wet. CL: ML: Pale brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-ML: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	+							23/12	
CL: Strong brown (7.5 YR 4/6) CLAY; little silt; soft, medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; little fine sand, soft; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, trace fine white gravel; stiff, low to medium plasticity, trace light bluish gray CL-MI.: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; medium plasticity; moist; black fine gravel at 10". CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-MI.: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	-	<mark>:/::/</mark> - : : : : : : : : : : : : : : : : : : :		CL-ML: Strong brown (7.5 YR 4/6) CLAY and SILT; trace medium sand; soft, moist.				18/12	
medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, trace fine white gravel; stiff, low to medium plasticity, trace light bluish gray (Gley 2 7/1) clay, slightly moist. 23/12 CL-ML: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; medium plasticity; moist; black fine gravel at 10°. CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity; moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. SC: Strong brown (7.5 YR 4/6) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. CL-ML: Pale brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-ML: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	-			plasticity, moist.		24-28	81	8/12	
-27 -28 -29 -29 -29 -30 -31 -32 -32 -33 -33 -34 -34 -34 -34	-			medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, trace fine white gravel; stiff, low to medium plasticity, trace light bluish gray				16/12	
-28 CL-ML: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; medium plasticity; moist; black fine gravel at 10". CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. SC: Strong brown (7.5 YR 4/6) fine SAND; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL: ML: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	+			(Giey 2 //1) clay, slightly moist.				21/12	
CL-ML: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; medium plasticity; moist; black fine gravel at 10". CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. SC: Strong brown (7.5 YR 4/6) fine SAND; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-ML: Strong brown (7.5 YR 4/6) CLAY; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	+							23/12	
CL: Strong brown (7.5 YR 4/6) CLAY; some fine to medium sand; very moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. SC: Strong brown (7.5 YR 4/6) fine SAND; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-ML: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	-	= : ± = : :		CL-ML: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; medium plasticity; moist; black fine gravel at 10".		28-32	100	9/12	
CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium plasticity, moist. SC: Strong brown (7.5 YR 4/6) fine SAND; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-ML: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	+	二: 土 土: i						15/12	
SC: Strong brown (7.5 YR 4/6) fine SAND; some clay, loose; wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-ML: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	-			CL: Strong brown (7.5 YR 4/6) CLAY; some silt, stiff; medium					
wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist. SC: Yellowish brown (10 YR 5/4) fine to medium SAND and CLAY; soft, very moist to wet. CL-ML: Pale brown (10 YR 6/3) CLAY and SILT; trace light bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	+	<u></u>							
CLAY; soft, very moist to wet. CLAY; soft, very moist to wet. CLAY; soft, very moist to wet. CLAY; soft, very moist to wet.	+	//.:		wet. CL: Yellowish brown (10 YR 5/4) CLAY; trace silt and fine sand; medium plasticity, soft; moist.		32-36	83		
bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly	+			CLAY; soft, very moist to wet.					
35	-	H::		bluish gray (Gley 2 7/1) clay, stiff; medium plasticity, slightly				17/12	



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-20											
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name			
-55		1				1	23/12				
-	$\Xi:\Xi$						23/12				
36	工::						0.44				
	<u>/:://:</u>		SC: Pale brown (7.5 YR 4/6) CLAY and fine SAND; some silt; little light bluish gray (Gley 2 7/1) clay; medium stiff, medium		36-40	83	8/12				
	<u>/:://:</u>		dense; very moist.								
37	<u>/:://:</u>						19/12				
-	<u>//.</u>										
38	-:		CL-ML: Strong brown (7.5 YR 4/6) and yellowish brown (10 YR 5/4) CLAY and SILT; trace fine round black gravel (iron?); trace				32/12				
-			white fine gravel; stiff, low plasticity, fairly dry.								
39	±::										
	_ : _ <u></u>						49/12				
	士::										
40	=: =	İ	CL-ML: Pale brown (10 YR 6/3) CLAY and SILT; little fine		40-43	100	15/12				
-	士::		gravel, low plasticity; moist.								
41		Ī	CL: Mottled light bluish gray (Gley 2 7/1), yellowish brown (10 YR 5/8) and pale brown (10 YR 6/3) CLAY; little silt; trace				35/12				
-	•••••		medium gravel, stiff, low plasticity. Slightly moist.					BEGIN CARBONATE			
42			SW: Light bluish gray (Gley 2 7/1) medium SAND; loose, wet. / GC-GM: Mottled yellowish borwn (10 YR 5/8), light greenish					ZONE			
			gray (Gley 2 7/1) CLAY, SILT, and fine GRAVEL; becoming				105/12				
[1	very pale brown (10 YR 8/2) SILT and fine GRAVEL; dense/stiff, moist.								
-43	<i>₩</i> :	1	SW: Very pale brown (10 YR 8/2) coarse SAND and medium GRAVEL; loose, wet.		43-45	100	100/12				
-			GW: Very pale brown (10 YR 8/2) coarse SAND and fine								
44	<u> </u>		GRAVEL; little silt, dense; wet.								
-											
45					45 47	100	100/11				
			GP: Very pale brown (10 YR 8/2) coarse SAND and fine GRAVEL; little silt, dense, wet.		45-47	100	100/11				
40											
46	<u> </u>										
-											
-47		ŀ	GP-GM: Very pale brown (10 YR 8/2) coarse SAND and		47-49	100	56/12				
-	<u> </u>	}	medium GRAVEL; some silt, dense, wet.								
48		}	GW: Very pale brown (10 YR 7/4) medium GRAVEL; little coarse sand, trace silt; wet.				87/6				
			GM: Very pale brown (10 YR 8/2) fine GRAVEL and SILT; some coarse sand, dense; moist.				87/0				
49											
-49			ML: Light greenish gray (Gley 1 7/1) and yellowish brown (10 YR 5/8) SILT; little fine gravel; stiff, slightly moist.		49-51	100	70/12				
1			110.70, 51.11, inde time graver, suri, sugardy moist.								
-50							100/5				
+											
L ₋₅₁			END OF SAMPLING								
			END OF SAMPLING								



_		+10 330 0202	Teerro meo								
Log of	Borir	ıg: N	иw-	21		Geolog	gist: BIL	L HA	.RVEY	7	
Subcontra	ctor: G	EOCI	M		Name of D	riller:FLC	OR RIVER	A			
Equipmen	nt: HOl	LLOW	STEM	A AUGERS (HSA) 8-in OD				D	rill T	ype: HSA	A
Date Start	ted: 4/	15/200	08	Date Completed: 4/15/2008	Depth of H	Depth of Hole (ft): 40.00 Boring/Well:MONITORING				MONITORING WELL	
Elevation	(ft): 25	5.12		Northing (m):867660.5503 Eastin	ng (m):76268	81.5519	UTM NA	D83	Gaug	ged Deptl	h to Water (ft): 11.7
Condition	ons: G	rass									
Comme	nts:	Buc	hanan								
Depth (ft)	USCS Log	Sample Interval		Description of Materials		Screening VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name
	1 1 1 1			Dark yellowish brown (10 YR 3/6) CLAY and e sand, low plasticity, dry.	SILT; little		0-4	0.8		6/12	
1			course	e sains, for publicity, siry.						13/12	
2										14/12	
3										14/12	
-4				Coarse GRAVEL; dry.			4-8	50		4/12	
5				Gray (10 YR 5/1) and brown (10 YR 4/3) CLA and organics; highly plastic; dry.	Y; soft; some					7/12	
6										11/12	
7										11/12	
8			CL: N	Mottled gray (10 YR 5/1), brown (10 YR 4/3), (Gley 2 7/1) CLAY; some silt; soft, highly plas	light bluish		8-12	100		3/12	
9										5/12	
10 -										9/12	
11 -	<u> </u>		CL-M	1L: Gray (10 YR 5/1) and brown (10 YR 4/3) 0	CLAY and					16/12	
12 -			CL: N soft, 1	; soft, highly plastic; very moist. Mottled gray (10 YR 5/1) and brown (10 YR 4/ ittle silt; trace fine to medium sand, mostly dry	y/		12-16	100		6/12	
13 -			7/1) C	'ellowish brown (10 YR 5/6) and light bluish g ZLAY; little silt, trace-little fine sand; soft, me city; slightly moist.	gray (Gley 2 dium					9/12	
14 -										17/12	
15 -	:::::: -::::		wet.	Light bluish gray (Gley 2 7/1) medium SAND;						21/12	
16 -			6/1) C OH: N	IL: Yellowish brown (10 YR 5/6) and bluish g CLAY and SILT; little sand, fairly soft, slightly Mottled light bluish gray (Gley 2 7/1) and yelld R 5/6) CLAY; some strong brown (7.5 YR 4/6	moist.		16-20	100		9/12	
17 -			silt; st	tiff; medium plasticity, mostly dry.	, ouch					17/12	
18										23/12	



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-21												
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name				
19							24/12					
- -2 0		-	OH: Strong brown (7.5 YR 5/8) with light bluish gray (Gley 2 7/1) mottles CLAY; some silt, medium plasticity; various wet seams; mostly dry, little black (iron) fine gravel at depth.		20-24	100	10/12					
21 -			seams; mosuly dry, inthe black (fron) line gravel at depth.				11/12					
							16/12					
23 -							16/12					
- -24		-	CL: Strong brown (7.5 YR 5/8) CLAY; little bluish gray (Gley 2 6/1) mottles; little silt; medium plasticity, soft; little fine sand at		24-28	100	6/12					
25 -			20", mostly dry/slightly moist.				10/12					
26 							14/12					
-27							19/12					
- - 28			SW: Brownish yellow (10 YR 6/8) to gray (10 YR 5/1) fine to medium SAND; some silt, very moist. CL: Strong brown (7.5 YR 5/8) CLAY;soft, slightly moist.		28-32	100	8/12					
29		•	GM: Very pale brown (10 YR 7/4), strong brown (7.5 YR 5/8) and brownish yellow (10 YR 6/8) fine GRAVEL; medium SAND, and SILT; little caly, very moist.				13/12	CARBONATES				
30							21/12					
31							50/5					
32		-	SM: Very pale brown (10 YR 7/3), light gray (10 YR 7/2) and brownish yellow (10 YR 6/8) fine SAND; some silt, trace fine		32-36	100	20/12					
33			white gravel, very moist.				223/12					
34		-	ML: Very pale brown (10 YR 7/4) and strong brown (7.5 YR 5/8) SILT; little clay, little fine sand, trace white gravel at depth; slightly moist, dense.				34/12					
35			singing moist, delise.				43/12					
36	 	-	CL-ML: Striated light greenish gray (Gley 1 7/1), strong brown (7.5 YR 5/8) and grayish green (Gley 1 4/2) CLAY and SILT;		36-40	100	15/12					
37			little fine sand, fairly stiff; mostly dry. GM: Light greenish gray (Gley 1 7/1) SILT and very pale brown (10 YR 7/4) to white fien GRAVEL; some medium sand, dense,				50/6					
-38			moist.									
-39												
40			END OF SAMPLING									



					10211011100							
Log of	Borir	ıg: N	ΛW-	-22		Geologist: BILL HARVEY						
Subcontra	ctor: G	EOCI	M		Name of D	Name of Driller:FLOR RIVERA						
Equipmen	nt: SPL	IT SP	OON,	4', 150 LB HAMMER				D	rill Ty	ype: HSA	Λ	
Date Start	ted: 4/	16/200	18	Date Completed: 4/17/2008	Depth of H	ole (ft):	50.00	·	Boring/Well:MONITORING WELL			
Elevation	(ft): 22	2.41		Northing (m):867935.4267 Eastin	ng (m):76303	32.7310	UTM NA	D83	Gauge	ed Deptl	n to Water (ft): 9.21	
Conditio	ons: G	rass						_				
Commer	nts:		hanan									
Depth (ft)	USCS Log	Sample Interval		Description of Materials		VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name	
			FILL	: Strong brown (7.5 YR 5/6) to light brown (7.5 ed CLAY (FILL); gravel at 1', wood pieces at 6	5 YR 6/4) depth.		0-4	50	!	9/12		
1				, ,,,,	.					13/12		
2										6/12		
3										9/12		
4												
4				Strong brown (7.5 YR 5/6) CLAY; little silt; sti M: Dark greenish gray (Gley 2 4/1) CLAY, SII			4-8	61	1	4/12		
5			SANI CL: I	D; moistening at depth, soft. Light bluish gray (Gley 2 7/1) and strong brown	1 (7.5 YR 5/6)					6/12		
6			CLA	Y; soft, little fine sand, trace silt. Slightly mois	it.							
-	 ////			Brown (10 YR 5/3) fine SAND; little silt, mois Light bluish gray CLAY; soft, medium plasticit						7/12		
7										7/12		
8							0.12			4/10		
				Dark bluish gray (Gley 2 4/1) CLAY; little stro YR 5/6) striations; organics; little silt, medium pdry			8-12	67	,	4/12		
9			5011,	 ,.						8/12		
10			SW: I	Light bluish gray (Gley 2 7/1) fine SAND; little	e clay, very					8/12		
11			OH: I CLA	Bluish gray (Gley 2 6/1) to dark bluish gray (Gly; soft, high plasticity; little silt; dry.	ley 2 4/1)							
										10/12		
12 -			SM: I	Bluish gray (Gley 2 6/1) SILT and fine SAND; moist.	soft, loose;		12-16	61		4/12		
13			SW: I	Bluish gray (Gley 2 6/1) and gray (10 YR 6/1) um SAND; little to trace silt, loose, wet.	fine to					8/12		
- 14										10/12		
-										10/12		
15										16/12		
16			OII I	Gobt bluich error (Class 2.7/1) CLAV	disses		16-20	80		3/12		
-				Light bluish gray (Gley 2 7/1) CLAY; soft, med city; little fine sand, moist.	uum		10-20	00		J, 12		
- -17										6/12		



FORT BUCHANAN PUERTO RICO

Log of	Borir	ıg: N	AW-22					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
18			CL: Brownish yellow (10 YR 6/8) mottled red (2.5 YR 4/8), bluish gray (Gley 2 5/1) CLAY; little medium sand; medium to low plasticity, stiffening; moist.				17/12	
19 -							25/12	
-2 0			CL: Mottled light bluish gray (Gley 2 7/1) yellowish red (5 YR 5/8) and strong brown (7.5 YR 5/6) CLAY; stiffening; some silt, little medium sand, low to medium plasticity, slightly moist.		20-24	83	10/12	
21 -			inde inculain saile, fow to inculain plasticity, signify moist.				19/12	
22 -							27/12	
23 -							32/12	
24 -			CL: Strong brown (7.5 YR 5/6) CLAY; mottled with light bluish grays (Gley 2 7/1) little silt, low plasticity, stiff; dry, slightly moist.		24-28	100	16/12	
25 -							33/12	
26 	::/::		SC: Strong brown (7.5 YR 5/6) CLAY and medium SAND to				46/12	
27 -			fine SAND at depth; dense to loose, wet.				50/10	
28 -	//		SW: Yellowish red (5 YR 4/6) fine to medium SAND; loose, little clay; wet.		28-32	67	5/12	
29 -			SW: Very dark gray (5 YR 3/1) medium SAND; loose, wet.				21/12	
30 -			CL: Yellowish red (5 YR 4/6) CLAY; little sand, moist. SW: Yellowish red (5 YR 4/6) medium SAND; loose; trace to some clay at depth; wet.				16/12	
31 -							28/12	
32 -	±:: <u> </u>		CL-ML: Yellowish red (5 YR 4/6) CLAY and SILT; stiff, low plasticity, moist. SC: Yellowish red (5 YR 4/6) medium SAND; some clay, moist.		32-36	100	16/12	
33 -			CL: Yellowish red (7.5 YR 4/6) and yellowish brown (10 YR 5/8) CLAY; some silt, some mottling; stiff, medium plasticity, slightly moist.				24/12	
34 -			ML: Black SILT; some clay; dry.				26/12	
35 -			CL: Mottled yellowish borwn (10 YR 5/8) and very pale brown (10 YR 7/4) CLAY; little silt, little medium sand; stiff, medium plasticity, moist.				26/12	
36 -			OL: Yellowish brown SILT; little clay, little black organics; fairly stiff, dry.		36-40	100	10/12	
37 -							14/12	
38 -			OL: Very pale brown (10 YR 7/4) SILT; little yellowish brown (10 YR 5/8) silt, trace black organics, trace fine gravel. Dry.				100/11	CARBONATES
39 -								



FORT BUCHANAN PUERTO RICO

Depth (ft)	USCS Log	 Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
-40		ML: Very pale brown (10 YR 7/4) SILT; some to little fine gravel and coarse sand, dense; moist.		40-44	100	40/12	
41 -		ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; some medium sand at top, stiff; moist.				52/12	
42 -						71/12	
43 						94/12	
44 -		ML: Yellowish red (5 YR 4/6) and greenish gray (Gley 1 6/1) SILT; little fine gravel, stiff; slightly moist.		44-48	100	29/12	
45 -						53/12	
46 -		ML: Greenish gray (Gley 1 6/1) SILT; little medium sand, little white gravel at depth; stiff, slightly moist.				60/12	
47 -						72/12	
48 -		ML: Greenish gray (Gley 1 6/1) SILT and white fine GRAVEL; very stiff, slightly moist (weather LS).		48-50	100	24/12	
49 -						145/12	
L ₋₅₀		END OF SAMPLING /	<u> </u>				



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: **MW-23** Name of Driller:FLOR RIVERA Subcontractor: JACA AND SIERRA Equipment: SPLIT SPOON, 4', 150 LB HAMMER Drill Type: HSA Date Started: 4/21/2008 Boring/Well:MONITORING WELL 4/21/2008 Depth of Hole (ft): 34.00 Date Completed: Elevation (ft): 28.45 Northing (m):867224.9043 Easting (m):762468.1612 Gauged Depth to Water (ft): 3.92 UTM NAD83 Conditions: Asphalt/Gravel Buchanan Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 FILL: FILL -2 -3 - -4 4-8 0.167 7/12 FILL: Fill material, dark yellowish brown (10 YR 4/4) CLAY and SILT, high plasticity, soft; some coarse sand. Moist. -5 5/12 - -6 6/12 - -7 6/12 -8 CL-ML: Brownish yellow (10 YR 5/8) and light bluish gray (Gley 2 7/1) CLAY and SILT; soft, medium plasticity; slightly 8-12 100 4/12 -9 6/12 -10 11/12 CL-ML: Gray (10 YR 6/1) and brownish yellow (10 YR 5/8) CLAY and black SILT (organics); soft; medium plasticity; slightly moist. - -11 16/12 - -12 12-16 100 28/12 CL-ML: Dark yellowish brown (10 YR 4/4) CLAY and SILT; . . ⊠ stiffening, mostly dry. GM: Very pale brown (10 YR 8/3) SILT and fine GRAVEL; dense/stiff, dry. . . ⊠ - -13 . . Ø 50/8 . . Ø - -14 . . ⊠ ⊠ - -15 . . ⊠ . . ⊠ - **-**16 16-20 100 16/12 ML: Light greenish gray (Gley 1 7/1) and brownish yellow (10 YR 5/8) SILT; some yellowish red (5 YR 4/6) silt, trace clay; stiff, dry.



FORT BUCHANAN PUERTO RICO

Log oi		_		Screening			# Blows	
Depth	Log	Sample Interval	Description of Materials	VOC	Depth (ft)	Recovery (%)	per	Remarks/Sample Name
(ft)		31		(ppm)	()	(,,,	# Inches	
L							38/12	
18							50/12	
-							59/12	
19							75/12	
-								
20		ţ	CL-ML: Light greenish gray (Gley 1 7/1) CLAY and SILT; some,		20-24	100	27/12	
-			coarse sand, soft, medium plasticity; moist.					BEGIN CARBONATE ZONE
21			ML: Light greenish gray (Gley 1 7/1) and yellowish brown (10 YR 5/8) SILT; little coarse sand, dense/stiff, slightly moist. SP: Very pale brown (10 YR 8/2) coarse SAND; some fine gravel				52/8	ZONE
22			and silt, dense; very moist/wet.					
- 22								
23								
-								
24		-	SW: Very pale brown (10 YR 8/2) coarse SAND and fine to coarse GRAVEL; little silt, dense; wet.		24-26	100	50/6	
-								
25			SM: Light greenish gray (Gley 1 7/1), very pale brown (10 YR 8/2) and yellowish brown (10 YR 5/8) SILT and coarse SAND; very moist.					
26								
20			GM: Very pale brown (10 YR 8/2) coarse SAND, fine GRAVEL, and SILT; dense; very moist, wet; becoming siltier at depth.		26-28	100	145/12	
27								
-								
28			GM: Very pale brown (10 YR 8/2) fine GRAVEL, coarse SAND,		28-32	100	100/12	
-			and SILT; dense, wet.					
29								
20								
30								
31								
-								
32			GW: Very pale brown (10 YR 8/2) coarse GRAVEL; some		32-34	100	50/12	
+			coarse sand, little silt; wet. ML: Yellowish brown (10 YR 5/6) SILT; little medium sand.					
33			stiff; slightly moist.				100/4	
-								
└ -34		• (END OF SAMPLING		1		ı	



				+10-336-6202	T CERTO RICO						
Log of	Borir	ng: N	ΛW-	24		Geolo	gist: BIL	L HA	RVEY	7	
Subcontra	actor: G	EOCIN	М		Name of E	riller:FL0	OR RIVER	A			
Equipmen	nt: SPL	IT SPO	OON, 4	4', 150 LB HAMMER				D	rill T	ype: HSA	A
Date Star	ted: 4/	18/200	8	Date Completed: 4/18/2008	Depth of Hole (ft): 40.00 Boring/Well:MONITOR						MONITORING WELL
Elevation	(ft): 22	2.05		Northing (m):867774.7022 Eastin	ng (m):7630	98.2129	UTM NA	D83	Gaug	ged Deptl	h to Water (ft): 4.4
Conditi	ons: A	sphalt									
Comme	nts:	Buc	hanan								
Depth (ft)	USCS Log	Sample Interval		Description of Materials		Screening VOC (ppm)	Depth (ft)	Reco	very	# Blows per # Inches	Remarks/Sample Name
Γ0			FILL:	: FILL							
-											
1											
-											
2											
3											
4		•	FILL:				4-8	60		4/12	
_			(10 Y (10 Y	very dark gray (10 YR 3/1) CLAY; becoming & R 5/2), light bluish gray (Gley 2 7/1) and yello R 5/8); little medium sand and silt, highly plas	grayish brown wish brown tic, soft;						
- -5			moist.							5/12	
6											
										5/12	
7										9/12	
-										9/12	
8		-	SC 81	M. Mottlad light bluich aray (Clay 2.7/1) vall	avviah mad (5		8-12	83		4/12	
-			YR 4/ mediu	M: Mottled light bluish gray (Gley 2 7/1), yello (6) and yellowish brown (10 YR 5/8) CLAY, S Im SAND; low to medium plasticity; fairly sof	SILT, and t. Moist.		0 12			., 12	
9										8/12	
-											
10										18/12	
-											
11										21/12	
12	<u>//:://.</u>			Yellowish brown (10 YR 5/8) and light bluish g	ray (Gley 2		12-16	100		14/12	
-			SP: Y	CLAY and medium SAND; moist. fellowish brown (10 YR 5/8), alternating with leading 2 7/1) medium SAND; loose, wet.	light bluish						
13			giay (Sicy 2 1/1) meanin SAND, 100st, wet.						20/12	
}	••••				ı						



FORT BUCHANAN PUERTO RICO

Log of	Born	1g: N	/IW-24					
Depth (ft)		Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
14							27/12	
15			CL-ML: Light bluish gray (Glev 2.7/1) and vellowish red (5.YR				15/12	
16			CL-ML: Light bluish gray (Gley 2 7/1) and yellowish red (5 YR 4/6) CLAY and SILT; little coarse sand, fairly soft, medium plasticity; moist. UNKNOWN: NO RECOVERY	<u> </u> 	16-20	0	17/12	
- 17							28/12	
- 18								
-							50/6	
19 -								
20 -			SP: Brownish yellow (10 YR 6/8) medium SAND; trace silt, loose; wet.		20-24	100	7/12	
21							23/12	
22							33/12	
23							31/12	
- 24			CL-ML: Mottled yellowish red (5 YR 4/6) and light bluish gray		24-28	75	16/12	
- 25			CL-ML: Mottled yellowish red (5 YR 4/6) and light bluish gray (Gley 2 7/1) CLAY and SILT; little medium sand; fairly stiff; moist. SP: Yellowish red (5 YR 4/6) medium SAND; loose, wet.				30/12	
- 			CL: Yellowish red (5 YR 4/6), light bluish gray (Gley 2 7/1) and yellowish brown (10 YR 5/8) mottled CLAY; some silt, stiff; low plasticity; little to trace medium sand. Slightly moist.				30/12	
-			low plasticity; little to trace medium sand. Slightly moist.				35/12	
27 -			CL-ML: Yellowish brown (10 YR 5/8) and strong brown (7.5 YR 4/6) CLAY and SILT; little black silt, stiff; moist.				42/12	
28 -			CL: Mottled yellowish brown (10 YR 5/8) yellowish red (5 YR 4/6), little light bluish gray (Gley 2 7/1) CLAY; some/little black silt, stiff; low plasticity, moist.		28-32	83	11/12	
							22/12	
30							30/12	



FORT BUCHANAN PUERTO RICO

Log of			/1 V - 2 1					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
31 			ML: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) SILT; some fine gravel, slightly moist.				45/12	
32			ML: Yellow (10 YR 7/6) and yellowish brown (10 YR 5/8) SILT; moist.		32-36	100	13/12	
33			OH: Blue to bluish gray (Gley 2 5/1) CLAY; highly plastic; moist. ML: Pale brown (10 YR 6/3) SILT; trace fine sand, moist.				30/12	
34			SM: Very pale brown (10 YR 7/4) and light greenish gray (Gley 1 7/1) to yellowish brown (10 YR 5/8) SILT and fine SAND; very moist.				44/12	
35							53/12	
36 			ML: Greenish gray (Gley 1 6/1) and strong brown (7.5 YR 5/6) SILT; stiffening; trace medium sand, moist.		36-40	100	53/12	
37							36/12	
38	= : ± = : :		CL-ML: Yellowish brown (10 YR 5/8) and very pale brown (10 YR 7/4) SILT and CLAY; stiff; little medium sand; very moist.				50/9	
20			ML: Very pale brown (10 YR 7/4) SILT; some fine gravel and medium sand; trace clay; very moist/wet.					
39 -			END OF SAMPLING					
40								



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: **MW-25** Name of Driller:FLOR RIVERA Subcontractor: GEOCIM Equipment: SPLIT SPOON, 4', 150 LB HAMMER Drill Type: HSA Date Started: 9/18/2008 Boring/Well:MONITORING WELL 9/18/2008 Depth of Hole (ft): 35.00 Date Completed: Elevation (ft): 19.96 Northing (m):867786.2588 Easting (m):762360.9860 Gauged Depth to Water (ft):14.61 UTM NAD83 Conditions: Grass Buchanan Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 29.2 FILL: Organics to FILL (clay, silt, little fine sand, little medium 0-45 6 -2 10 -3 12 - -4 4-8 100 4 CL: Mottled (light bluish gray (Gley 2 8/1) yellowish brown (10 YR 5/8) yellowish red (5 YR 4/6)) CLAY; little silt, trace coarse sand at depth; highly plastic, soft; slightly moist. 8 -6 10 -7 12 -8 CL: Mottled light bluish gray (Gley 2 8/1), yellowish red (5 YR 4/6), and brownish yellow (10 YR 6/8) CLAY; little silt and 8-12 100 8 medium sand; medium plasticity, stiff; dry,. -9 17 -10 42 SW: Brownish yellow (10 YR 6/8) fine to medium SAND; loose, - -11 40 CL-ML: Light bluish gray (Gley 2 8/1) CLAY and SILT; low -12 12-16 83 12 CL-ML: Light bluish gray (Gley 2 8/1) CLAY and SILT; some medium sand, little brownish yellow (10 YR 6/8) silt; fairly stiff/dense, moist. - -13 20 -14 34 SM: Purplish medium to coarse SAND with striations of light yellowish brown (10 YR 6/4) SILT; dense, moist. - -15 48 - -16 16-20 100 16 CL: Mottled/striated light bluish gray (Gley 2 8/1), yellowish brown (10 YR 5/8), and brown (10 YR 4/3) CLAY; some silt, little medium to coarse sand at intervals; stiff, moist to very



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-25										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
ļ				<u> </u>			17			
18							27			
19							30			
			CL: Light bluish gray (Gley 2 8/1) and yellowish brown (10 YR		20-24	100	10			
- 21			CL: Light bluish gray (Gley 2 8/1) and yellowish brown (10 YR 5/8) CLAY; little sand at top of interval; medium plasticity; little silt, medium stiffness; slightly moist.				10			
- 22										
		•	OL: Yellowish brown (10 YR 5/8) and black (organics) SILT; some clay, fairly soft; moist.				15			
_							21			
24 -			GM: Yellow (10 YR 7/8) and very pale brown (10 YR 7/4) SILT and fine GRAVEL; fairly stiff/dense, very moist.		24-28	54	2	BEGIN CARBONATES		
25 -							14			
26 -			OL: Dark yellowish brown (10 YR 3/6) and black SILT; little fine gravel and clay, soft; wet.				7			
27							2			
28			GM: Very pale brown (10 YR 7/4) fine GRAVEL and SILT; dense/stiff; moist		28-32	100	0			
29			dense/stiff, moist				51			
30							100/4"			
- 31										
32		·			22.26	100	24			
33			SM: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) fine SAND; some silt, more at depth; wet.		32-36	100	34			
-			ML: Greenish gray (Gley 1 6/1) and yellowish brown (10 YR 5/8) SILT; stiff, fairly dry.				63			
- -34							100/11"			
└35			END OF SAMPLING							



_				+10-336-6202 		1				101	
Log of	Borin	ng: N	ΛW-	26		Geologist: BILL HARVEY					
Subcontra	actor: G	EOCI	M		Name of D	riller:FLC	OR RIVER	A			
Equipmen	nt: SPL	IT SP	OON, 4	4', 150 LB HAMMER				D	rill Ty	pe: HSA	Λ
Date Star	ted: 9/	15/200	18	Date Completed: 9/16/2008	Depth of H	Depth of Hole (ft): 40.00 Boring/Well:MONITO				MONITORING WELL	
Elevation	(ft): 19	9.93		Northing (m):867949.2386 Eastin	ng (m):76240	07.0179	UTM NA	D83	Gauge	ed Deptl	h to Water (ft): 14.46
Conditi	ons: G	rass									
Comme	nts:	Buc	hanan								
Depth (ft)	USCS Log	Sample Interval		Description of Materials		Screening VOC (ppm)	Depth (ft)	Reco	overy	# Blows per # Inches	Remarks/Sample Name
Γ0			FILL:	FILL, mostly clay and silt, moist.							
1											
2											
2											
3											
4	<u> </u>		GW:	Coarse white GRAVEL.			4-8	21		10	
- 5				Light bluish gray (Gley 2 8/1) some yellowish octAY; little silt, highly plastic; slightly moist.	red (5 YR					10	
-										10	
6 -									1	12	
7										13	
8			CH: I	ight bluish gray (Gley 2 8/1) and yellowish re	d (5 YR 4/6)		8-12	83	3	3	
- 9			CLAY	Y, trace silt, soft; highly plastic, very moist.						8	
- 10				Yellowish red (5 YR 4/6) and dark yellowish be CLAY; little silt, little coarse sand; med-high p	rown (10 YR lasticity, soft,					12	
- 11			CH: I	Light bluish gray (Gley 2 8/1) CLAY; some ye'(6) silt; little to some fine gravel; stiff, medium	llowish red (5						
-			moist		plasticity,				1	24	
12 -			CL-M	IL: Banded, striated yellowish red (5 YR 4/6) Soluish gray (Gley 2 8/1) CLAY; little fine grav	SILT and el, stiff;		12-16	96	ģ	9	
13	=: =		mediu	ım plasticity; trace black fine gravel, dry.						18	
14	工: :: 工								2	28	
- 15										32	
10	_ : <u>+</u>								-	32	
- -16				ight bluish gray (Gley 2 8/1) CLAY; medium soft; dry.	plasticity,		16-20	100		12	
17										18	
18										20	
- 19	Ξ:		YR 5/	IL: Yellowish red (5 YR 4/6), some yellowish /8) SILT and CLAY; little light bluish gray (Garace black silt (organics); stiff, dry.	brown (10 ley 2 8/1)						
-	二:工 工:		ciay,	and one (organics), still, dry.						26	
- -20	///		CL: Y	Vellowish red (5 YR 4/6) CLAY; stiff, dry.			20-24	100		10	



FORT BUCHANAN PUERTO RICO

Log of Boring: MW-26										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
21			SW: Yellowish brown (10 YR 5/6) fine SAND; little clay, moist ML: Yellowish brown (10 YR 5/6) SILT; some clay, some black silt; stiff; dry.				15			
22 -			ML: Brownish yellow (10 YR 6/6) and black SILT; some clay; low to medium plasticity; stiff, dry.				22			
23 -							23			
24 -	<mark>.,,,,,,</mark> , ,, ,,		OL: Yellow (10 YR 7/8) and brownish yellow (10 YR 6/8) and black SILT; little clay, soft; slighly moist.		24-28	100	23			
25 -							6			
26 			OL: Yellow (10 YR 7/8) and brownish yellow (10 YR 6/8) SILT; trace clay, trace fine gravel; very soft, very moist. OL: Strong brown (7.5 YR 5/8) little black SILT; trace clay, fine				8			
27 -			white gravel at top of interval; very stiff, mostly dry.				14			
28 -			GM: Very pale brown (10 YR 7/4) medium GRAVEL; wet. CL-ML: Strong brown (7.5 YR 5/8) SILT and CLAY; stiff.		28-32	79	10	BEGIN CARBONATE ZONE		
29 -			GM: Very pale brown (10 YR 7/4) fine to coarse GRAVEL; some strong brown silt; some coarse sand; loose, wet.				14			
30 -							16			
31 -							12			
32 -			GM: Yellow (10 YR 7/8) SILT and very pale brown (10 YR 7/4) fine GRAVEL; fairly dense, wet to very moist.		32-36	100	8			
33 -							23			
34 -							37			
35 -			OL: Brownish yellow (10 YR 6/8) SILT; some fine to coarse gravel, stiffening; moist.				34			
36 			GM: Yellowish brown (10 YR 5/6) SILT and coarse white GRAVEL; wet.		36-40	62.5	3			
37 -			GM: Very pale brown (10 YR 7/4) and yellow (10 YR 7/8) SILT and fine to medium GRAVEL; dense, stiffening; moist. OL: Light gray (10 YR 7/2) SILT; some fine to medium gravel,				1			
38 -			little yellowish brown (10 YR 5/6) silt at depth; stiff, fairly dry.				55			
39 -							50/4"			
L ₋₄₀			END OF SAMPLING							



Log of Boring: OP-1			Geologist: BILL HARVEY					
Subcontractor: GEOCIM		Name of Dri	ller:FLO	R RIVER	A			
Equipment: HOLLOW STEM	A AUGERS (HSA) 8-in OD		Drill Type: HSA					L
Date Started: 12/12/2008	Date Completed: 12/15/2008	Depth of Hole (ft): 76.00 Boring/Well:MONITORING WELL					IONITORING WELL	
Elevation (ft):	Northing (m): Eastin	ng (m):	Ţ	JTM NAI	083	Gaug	ged Depth	n to Water (ft):
Conditions: Grass off Roo	ute 22westernmost well							
Comments: Offpost w	rells							
Depth (ft) Log Sample Supplemental Interval	Description of Materials		VOC (ppm)	Depth (ft)	Recor	/s)	# Blows per # Inches	Remarks/Sample Name
12345678910111213141516171819202122232425262728293031323132333435363738394041								



FORT BUCHANAN PUERTO RICO

Log of Boring: **OP-1**

Log of Boring. Of 1										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
			OH: Yellowish brown (10 YR 5/8) little yellowish red (5 YR 4/6) CLAY; stiff, medium plasticity, little silt (black) trace fine sand.		45-47	100	29/12 36/12			
			SW: Yellow (10 YR 7/6) to yellowish brown (10 YR 5/8) fine SAND; loose, wet; little clay. GP: Very pale brown (10 YR 7/4) fine to coarse GRAVEL; little silt and coarse sand; wet.		50-52	60	31/12 11/12	BEGIN CARBONATE ZONE		
53 54 55 56 57			GP: Very pale brown (10 YR 7/4) fine to coarse GRAVEL; little silt and coarse sand; wet.		55-57	60	50/12 11/12			
			CL-ML: Strong brown (7.5 YR 4/6) CLAY and SILT; soft; little medium sand, moist. GW: Very pale brown coarse GRAVEL; dense, weathered rock;		60-62	60	18/12 94/12			
63 64 65 66			GW: Very pale brown (10 YR 7/4) coarse GRAVEL, dense, weathered rock; mostly dry.		65-67	90	100/9			
			GW: Very pale brown (10 YR 7/4) coarse GRAVEL; dense, weathered rock; mostly dry.		70-72	100	100/7			
71 72 73 74 75										
-76	<u> </u>		GW: Very pale brown (10 YR 7/4) coarse GRAVEL; dense, weathered rock; mostly dry. END OF SAMPLING		75-77	100	100/3			



	410-330-0202		TOERTORICO					
Log of Boring: OP-2	2		Geologist: BILL HARVEY					
Subcontractor: GEOCIM		Name of Dri	iller:FLO	R RIVERA	١.			
Equipment: HOLLOW STEM	M AUGERS (HSA) 8-in OD				Drill	Type: HSA	<u> </u>	
Date Started: 12/17/2008	Date Completed: 12/17/2008	Depth of Ho	le (ft):	75.00	Bor	ing/Well:N	MONITORING WELL	
Elevation (ft):	Northing (m): Eastin	ng (m):	1	UTM NAD	83 Gai	uged Deptl	n to Water (ft):	
Conditions: Grass/tall ve	egetation near CPR pipeline, ~30 yard	ls off Route 22	2					
Comments: Offpost w	vells							
Depth (ft) USCS Log was undersal users and users a log with the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the co	Description of Materials		VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name	
1234567891011121314151617181920212223242526272829303132333435								



FORT BUCHANAN PUERTO RICO

Log of Boring: **OP-2**

Log of Boring: OP-2										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
35 36 37 38 39										
40 41 42 43			CL: Yellowish red (5 YR 4/6) to strong brown (7.5 YR 4/6) to yellowish brown (10 YR 5/8) CLAY; medium plasticity, stiffening at depth; little silt, little medium gravel at depth.		40-42	83	6/12 13/12			
44 45 46 47 48			CL: Mottled/striated yellowish red (5 YR 4/6), strong brown (7.5 YR 4/6) and yellowish brown (10 YR 5/8) CLAY; some silt, medium stiffness and plasticity. Mostly dry. GP: Fine to coarse yellow (10 YR 7/6) to very pale brown (10 YR 8/3) GRAVEL; some coarse sand, little clay/silt, dense, wet.	_	45-47	100	20/12 70/12	BEGIN CARBONATE ZONE		
49 50 51 52 53 54			GP: Yellow (10 YR 7/6) and very pale brown (10 YR 8/3) fine to coarse GRAVEL; some coarse sand, little silt, dense; very moist.		50-52	83	102/12			
55 56 57 58 59			SC-SM: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) CLAY, SILT, and coarse SAND; highly plastic, soft, wet. GM: Very pale brown (10 YR 8/3) fine to coarse GRAVEL and yellowish brown SILT; dense, moist.		55-57	100	55/12 92/12			
60 61 62 63 64			GP: Yellow (10 YR 7/8) little very pale brown (10 YR 8/3) fine to coarse GRAVEL; some coarse sand, little silt; dense, wet.		60-62	67	25/12 29/12			
65 66 67 68 69			GP: Yellow (10 YR 7/8) and very pale brown (10 YR 8/3) fine to coarse GRAVEL; some coarse sand, little clay, trace silt; medium density, wet.		65-67	60	20/12 27/12			
			GW: Yellow (10 YR 7/8 coarse GRAVEL; little coarse sand, little clay; dense, wet. GM: White (10 YR 8/1), some black (10 YR 2/1) fine GRAVEL and SILT; little yellowish brown (10 YR 5/8) silt. Slightly moist.		70-72	50	28/12 24/12			
73 74 75			GM: Yellow (10 YR 7/8) coarse GRAVEL and SILT; dense, slightly moist. ML: Light greenish gray (Gley 1 7/1) little yellowish brown (10 YR 5/8) SILT; dense. Slightly moist/dry. END OF SAMPLING		73-75	60	26/12 38/12			



Log of Boring: OP-3	3	Geologist: BILL HARVEY Name of Driller:FLOR RIVERA					
Subcontractor: GEOCIM		Name of Dri	iller:FLO	R RIVERA			
Equipment: HOLLOW STE	M AUGERS (HSA) 8-in OD		Drill Type: HSA				
Date Started: 12/9/2008	Date Completed: 12/10/2008	Depth of Ho	le (ft):	87.00	Bor	ing/Well:N	MONITORING WELL
Elevation (ft):	Northing (m): Eastin	ng (m):		UTM NAD	83 Gau	iged Deptl	n to Water (ft):
Conditions: Grass near E	Il Toro Creek off Route 22						
Comments: Buchanai	n					1	
Depth (ft) USCS Log Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies Supplies S	Description of Materials		VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
- 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41							



FORT BUCHANAN PUERTO RICO

Log of Boring: **OP-3**

Log of			Jr-3	Screening			# Blows	
Depth (ft)	USCS Log	Sampl	Description of Materials	VOC (ppm)	Depth (ft)	Recovery (%)	per # Inches	Remarks/Sample Name
42								
43								
-44								
-45								
46								
47								
48 49								
50								
-51	 . : . : ∕		GW: Very pale brown (10 YR 7/3) coarse GRAVEL; trace coarse sand and silt; dense, wet.		50-52	0.25	20/12	BEGIN CARBONATE ZONE
52			said and sni, dense, wet.				22/12	
53	· · · · ·							
-54								
55	<u>⊠</u>		GP: Very pale brown (10 YR 7/3) and yellow (10 YR 7/6) fine to	-	55-57	60	58/12	
56			coarse GRAVEL; some coarse sand; little silt. Dense, wet.				39/12	
-57								
58 59	⊠ . ⊠ ⊠							
-60								
61			GP: Yellow (10 YR 7/6) some strong brown (7.5 YR 4/6) coarse GRAVEL; little coarse sand, little silt; dense, wet.		60-62	60	19/12	
62	<u>⊠.∵⊠</u>		,,,,,,,,,,				28/12	
-63								
-64	M							
65	N		GP: Yellow (10 YR 7/6) fine to coarse GRAVEL; little to some	1	65-67	60	77/12	
66 			silt and coarse sand; dense, wet.				100/8	
67 68								
-69								
70	-/-/				70-72	75	72/12	
71	⊠ <u>D</u>		GC: Strong brown (7.5 YR 4/6) CLAY and coarse yellow (10 YR 7/6) GRAVEL; soft, highly plastic; wet.	1	70-72	75	27/12	
-72	⊠ . ⊠ ⊠		GP: Very pale brown (10 YR 7/4) coarse GRAVEL; some coarse sand, trace silt; dense, wet.				2//12	
73	⊠		said, duce sitt, delise, wet.					
74 	⊠ ⊠ ⊠							
75 76	<u>⊠</u> ⊼		GP: Yellow (10 YR 7/6) fine to coarse GRAVEL and coarse	1	75-77	60	29/12	
-70			SAND; trace silt, dense, wet.				100/9	
78								
79								
-80			GM: Yellow (10 YR 7/6) coarse GRAVEL; some silt, some	l	80-82	55	24/12	
-81			coarse sand; dense; very moist to wet.	1			54/12	
82			GM: Yellow (10 YR 7/6) and very pale brown (10 YR 7/4) coarse GRAVEL and SILT; little coarse sand, dense/stiff; moist.					
83			,, y					
85 86	E3 E3		GM: Yellow (10 YR 7/6) and very pale brown (10 YR 7/4) coarse GRAVEL and SILT; dense, moist.	1	85-87	100	29/12	
-87			ML: Light gray (10 YR 7/2) and yellowish brown (10 YR 5/8)				36/8	
-		,	becoming slightly greenish gray (Gley 2 7/1) SILT; little fine to coarse gravel; medium stiff. Mostly dry.	•				
			END OF SAMPLING					

FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: OP-4 Name of Driller:FLOR RIVERA Subcontractor: GEOCIM Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 12/5/2008 Boring/Well:MONITORING WELL 12/5/2008 Date Completed: Depth of Hole (ft): 84.00 Elevation (ft): Northing (m): Easting (m): Gauged Depth to Water (ft): UTM NAD83 Conditions: Grass off Route 22 Buchanan Comments: Sample Interval Screening # Blows Depth Recovery USCS Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches Г0 -- -1 **--2 -** -3 - **-**4 - -5 -6 -7 -- -8 - -9 - -10 -11 -12 - -13 -14 -15 - -16 -17 -18 - -19 -20 -- -21 **--22** -23 - -24 - -25 - -26 -27 - -28 - -29 - -30 **--** -31 **– -**32 - -33 -34 **⊢ -**35 35-37 79 11/12 CL: Yellowish red (5 YR 5/8) CLAY; some silt, little back silt (magnesium oxides); trace medium sand. Stiff, dry. - -36 23/12 -37 -38 -39



FORT BUCHANAN PUERTO RICO

Log of Boring: **OP-4**

Log of Boring: OP-4										
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
			CL: Yellowish red (5 YR 5/8) and strong brown (7.5 YR 5/8) CLAY; medium-high plasticity little silt, soft. Dry. SC-SM: Yellowish red (5 YR 5/8), strong brown (7.5 YR 5/8) CLAY, SILT, and fine SAND; soft, wet.		40-42	71	4/12 9/12			
	H::		CL-ML: Yellowish red (5 YR 5/8), strong brown (7.5 YR 5/8), brownish yellow (10 YR 6/8) mottled CLAY and SILT; some black oxidized silt; highly plastic, soft. Moist.		45-47	100	4/12 5/12			
49 50 51 52 53	±:		CL: Yellowish red (5 YR 5/8) to yellow (10 Yr 7/6) CLAY; some silt, medium plasticity, very soft. Moist.		50-52	75	3/12 4/12			
54 55 56 57 58			GW: Yellow (10 YR 7/6) and very pale brown (10 YR 7/4) GRAVEL; little silt and coarse sand, dense; wet.		55-57	90	58/12 75/10	BEGIN CARBONATE ZONE		
			SW: Yellow (10 YR 7/6) coarse SAND; trace silt; loose, wet. GP: Very pale brown (10 YR 7/4) fine to coarse GRAVEL and coarse SAND; little silt, dense, wet.		60-62	100	22/12 75/3			
64 65 66 67 68 69			GP: Yellow (10 YR 7/6) fine to coarse GRAVEL and coarse SAND; dense, trace yellowish red (5 YR 4/6) silt; wet.		65-67	100	43/12 75/4			
70 71 72			GP: Very pale brown (10 YR 7/4) coarse SAND and coarse GRAVEL; dense; little dark yellowish brown (10 YR 4/6) clay; wet. CL: Mottled very pale brown (10 YR 7/4) yellowish red (5 YR		70-72	55	34/12 13/12			
			SW: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) coarse SAND; little silt, dense; wet. GW: Very pale brown (10 YR 7/4) and yellow (10 YR 7/6) coarse SAND; little silt, dense; wet. GW: Very pale brown (10 YR 7/4) coarse angular to round GRAVEL; little coarse sand, trace silt; dense, wet.		73-75	100	77/12			
			GM: White (10 YR 8/1) coarse GRAVEL; some yellow (10 YR 7/6) to dark yellowish brown (10 YR 4/6) silt; little coarse sand; dense, wet.		78-80	100	75/8			
82 83 84			GM: Very pale brown (10 YR 7/4) little yellowish brown (10 YR 5/8) coarse GRAVEL and SILT; some coarse sand; dense, moist/ML: Light greenish gray (Gley 1 7/1) and yellowish brown (10 YR 5/8) SILT; stiff, mostly dry. ML: Dark bluish gray (Gley 2 4/1) SILT. Stiff.		82-84	100	54/12 54/12			
			END OF SAMPLING							



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: **OP-5** Name of Driller:FLOR RIVERA Subcontractor: GEOCIM Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL Date Started: 12/1/2008 12/3/2008 Date Completed: Depth of Hole (ft): 86.00 Elevation (ft): Northing (m): Easting (m): Gauged Depth to Water (ft): UTM NAD83 Conditions: Grass near Route 22 Offpost wells Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%)(ft) (ppm) # Inches - 0 42 4/12 0-4FILL: Mottled CLAY, fine to coarse GRAVEL, little silt. Dry - -1 10/12 -2 9/12 - -3 6/12 -4 3/12 4-8 0 -5 1/12 -6 1/12 - -7 4/12 **--8** 8-12 50 4/12 CH: Gray (10 YR 5/1) CLAY; very soft, high plasticity; little light bluish gray (Gley 2 7/1) clay. Dry. - -9 2/12 - -10 1/12 **-- 11** 3/12 - -12 12-16 63 4/12 CL: Highly mottled yellowish red (5 YR 4/6), light bluish gray (Gley 2 7/1) and yellowish brown (10 YR 5/8) CLAY; little silt, - -13 7/12 low plasticity; stiff. Dry. - -14 13/12 - -15 20/12 - -16 16-20 100 9/12 CL: Mottled yellowish red (5 YR 4/6), white (10 YR 8/1), and yellowish brown (10 YR 5/8) CLAY; some silt; low plasticity, - -17 10/12 - -18 CH: Mottled yellowish red (5 YR 4/6) and yellowish brown (10 19/12 YR 5/8) CLAY to light bluish gray (Gley 2 7/1) CLAY; highly plastic, soft, dry. - -19 26/12 -20 9/12 20 - 24100 CH: Light bluish gray (Gley 2 8/1) CLAY; very soft, highly plastic; some mottles of yellowish red (5 YR 4/6); trace silt. - -21 16/12 - -22 31/12 CL: Light bluish gray (Gley 2 8/1), yellowish brown (10 YR 5/8) CLAY; some silt; stiff; medium plasticity, dry. - **-**23 25/12 -24 100 13/12 24-28 CL: Light bluish gray (Gley 2 8/1) CLAY; little yellowish brown (10 YR 5/8) silt; highly plastic, soft, dry. -25 30/12 - -26 41/12 CL-ML: Yellowish brown (10 YR 5/8) CLAY and SILT; little - -27 49/12 yellowish red (5 YR 4/6) mottles; little black silt. Low plasticity, fairly stiff, dry -28 28-32 100 16/12 CL: Yellowish brown (10 YR 5/8) CLAY, some silt; little black - -29 silt (organics), trace fine black (magnesium oxides) gravel. Low to medium plasticity, stiffening. Dry. 33/12 – **-**30 49/12 -31 50/12 - **-**32 32-36 100 11/12 CL-ML: Yellowish brown (10 YR 5/8) CLAY and black SILT -33 (organics); medium stiffness, low plasticity, dry 28/12

- -34



FORT BUCHANAN PUERTO RICO

Log of Boring: **OP-5**

Log of	Log of Boring: OP-5									
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name		
	<u> </u>		CL: Mottled yellowish brown (10 YR 5/8), black, dark reddish brown (5 YR 3/4) CLAY; some silt, stiff; low-medium plasticity, dry.		36-40	100	43/12 51/12 19/12 33/12 48/12			
			CL: Mottled yellowish red (5 YR 4/6) yellowish brown (10 YR 5/8) and black CLAY, some silt; trace fine gravel; very stiff, low plasticity. Dry.		40-44	83	54/12 14/12 29/12 36/12			
			GP: Yellow (10 YR 8/6, 7/8) fine SAND and fine GRAVEL; loose, wet. GW: Yellow (10 YR 7/8) medium to coarse GRAVEL; little coarse sand, little yellowish brown (10 YR 5/8) clay; loose, wet.		44-48	50	47/12 16/12 39/12 30/12	BEGIN CARBONATE ZONE		
47 48 49 50			GW: White, yellow (10 YR 7/8) coarse GRAVEL; some coarse sand; little to trace brown (10 YR 4/3) clay; loose, wet.		48-52	48	27/12 59/12 29/12 20/12			
			GP: White, yellow (10 YR 7/8) fine to coarse GRAVEL; some coarse sand; some brown (10 YR 4/3) clay; little silt. Wet.		52-56	64	18/12 28/12 21/12 12/12			
55 56 57 58			GM: White, yellow (10 YR 7/8) coarse GRAVEL; some brown (10 YR 4/3) silt; dense, wet.		56-60	100	75/11 100/8			
59 60 61 62 63			GW: Yellow (10 YR 7/8) and white medium to coarse GRAVEL; little yellow silt and clay, wet. ML: Yellowish red (5 YR 4/6) SILT; trace clay, stiff. SM: Dark reddish brown (5 YR 3/4) and reddish brown (5 YR 4/4) fine SAND and SILT; wet.		60-64	53	38/12 48/12 22/12			
64 65 66 67			SM: Brownish yellow (10 YR 6/8) fine SAND and SILT, wet. GW: Yellow (10 YR 7/8) coarse GRAVEL, little coarse sand, little silt (greater at depth); dense, wet.		64-68	58	15/12 20/12 8/12 40/12 26/12			
			GM: Yellow (10 YR 7/8) coarse SAND and coarse white GRAVEL; some dark yellowish brown (10 YR 4/4) silt; dense, wet.		68-72	52	26/12 22/12 40/12 130/12			
72 73 74 75 76			GP: Very pale brown (10 YR 7/4) and yellow (10 YR 7/8) coarse GRAVEL and SAND; little silt, dense; wet. CH: Strong brown (7.5 YR 5/8) CLAY; highly plastic, little silt; soft. Dry. GM: Very pale brown (10 YR 8/3) SILT and medium GRAVEL; some coarse sand; moist.		72-76	69	47/12 43/12 20/12 42/12			



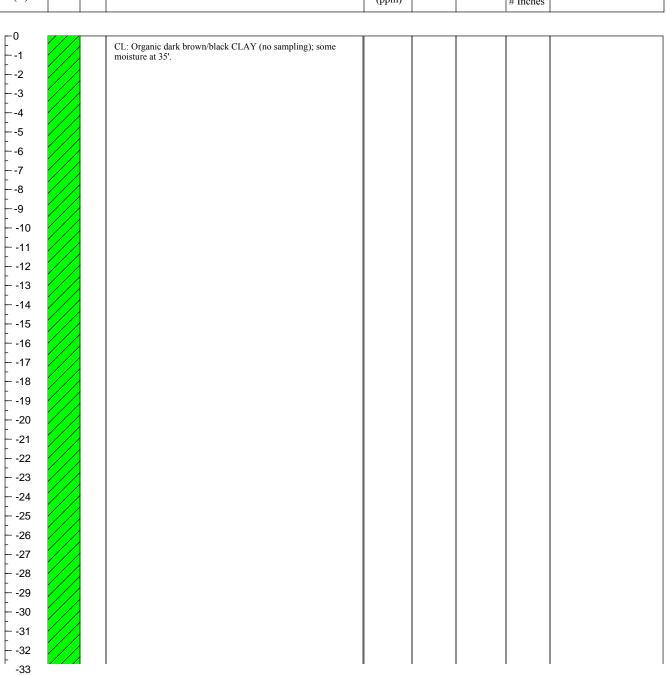
FORT BUCHANAN PUERTO RICO

Log of Boring: **OP-5**

Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
77 78 79 80		1 1 1 1 1	GM: Very pale brown (10 YR 8/3) SILT, fine GRAVEL, and coarse SAND; little iron oxides, stiffer, very moist.		76-80	100	35/12 100/11	
			GP: Yellow (10 YR 7/8) coarse GRAVEL and coarse SAND; little silt, wet. ML: Yellow (10 YR 7/8) and light brownish gray (10 YR 6/2) SILT; little to some coarse sand, moist.		80-84	69	20/12 24/12 50/8	
83 84 85 86			ML: Light greenish gray (Gley 1 7/1) little brownish yellow (10 YR 6/8) SILT and medium angular GRAVEL; dense, moist.		84-86	100	100/8	
— - 00			END OF SAMPLING					



Log of	Borir	ng: O I	2-6			Geologist: BILL HARVEY						
Subcontra	actor: G	EOCIM			Name of Driller:FLOR RIVERA							
Equipmen	nt: HOI	LLOW S	TEM AUGERS (HSA) 8	-in OD	Drill Type: HSA					A		
Date Start	ted: 2/	17/2009	Date Completed:	2/18/2009	Depth of Ho	ole (ft):	82.00	Boring/Well:MONITORING WELL				
Elevation	(ft): 13	3.47	Northing (ft): 87	1169.7782 Easting	g (ft): 761896.6345 UTM NAD83				Gauged Depth to Water (ft): 9.82			
Condition	ons: C	leared p	ath in undergrowth alo	ong pipeline								
Comments: Offpost wells												
Depth (ft) USCS Log Description of Materials					VOC (ppm)	Depth (ft)	Recover	# Blows per # Inches	Remarks/Sample Name			





FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: **OP-6** Name of Driller:FLOR RIVERA Subcontractor: GEOCIM Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Boring/Well:MONITORING WELL 2/18/2009 Date Started: 2/17/2009 Depth of Hole (ft): 82.00 Date Completed: Elevation (ft): 13.47 Northing (ft): 871169.7782 Easting (ft): 761896.6345 Depth to Water (ft): 9.82 Conditions: Cleared path in undergrowth along pipeline Offpost wells Comments: Screening # Blows Sample Interval USCS Depth Recovery Remarks/Sample Name Depth Description of Materials per VOC Log (ft) (%) (ft) (ppm) # Inches -33 -34 -35 -36 -37 -38 -39 - -40 11/12 100 40-44 OH: Yellowish brown (10 YR 5/8), some black (10 YR 2/1) -41 CLAY; some silt; dense, stiff; medium plasticity. 29/12 -42 35/12 -43 51/12 GC: Yellowish brown (10 YR 5/8) CLAY and coarse very pale -44 BEGIN CARBONATE brown (10 YR 7/4) GRAVEL; dense, very moist. ZONE -45 45-46 100 72/8 GP: Yellow (10 YR 7/6) fine to coarse GRAVEL; some coarse -46 sand, little silt; fairly dense, wet. × Ø -47 **X** -48 48-52 58 28/12 GP: Yellow (10 YR 7/6) coarse GRAVEL; some coarse sand, **×** -49 little yellowish brown (10 YR 5/6) clay; dense, wet. 16/12 -50 20/12 - -51 35/12 Ø -52 Ø -53 53-56 90 75/12 ⊠ GP: Yellow (10 YR 7/6) coarse GRAVEL; some coarse sand; -54 little yellowish brown (10 YR 5/6) clay; dense, wet. 56/12 Ø -55 100/7 Ø -56 \boxtimes -57 57-59 76 100/12 GP: Yellow (10 YR 7/6) coarse GRAVEL; some coarse sand; -58 little yellowish brown (10 YR 5/6) clay; dense, wet. 100/9 . ⊠ . . . - -59 -60 × 60-62 75 19/12 GP: Yellow (10 YR 7/6) coarse GRAVEL; some coarse sand, -61 little yellowish brown (10 YR 5/8) clay; dense, wet. 89/12 -62 × -63 ⊠ -64 GP: Very pale brown (10 YR 8/4) coarse GRAVEL; some

65-67

-65

coarse sand; trace silt; dense, wet.



Log of Boring: OF	-6		Geolog	gist: BIL	L HA	ARVE	Y			
Subcontractor: GEOCIM		Name of Di	Name of Driller:FLOR RIVERA							
Equipment: HOLLOW ST	TEM AUGERS (HSA) 8-in OD	Drill Type: HSA								
Date Started: 2/17/2009	Date Completed: 2/18/2009	Depth of Ho	ole (ft):	82.00		Borin	Boring/Well:MONITORING WELL			
Elevation (ft): 13.47	Northing (ft): 871169.7782 Easting	(ft): 761896.6	6345 U	ΓM NAD8	3	Dept	th to Wate	er (ft): 9.82		
Conditions: Cleared pa	th in undergrowth along pipeline									
Comments: Offpos	t wells									
Depth USCS Log Supplies Log Log Depth Log Log Depth Log Log Log Log Log Log Log Log Log Log	Description of Materials		VOC (ppm)	Depth (ft)		overy %)	# Blows per # Inches	Remarks/Sample Name		
67	P: Yellow (10 YR 7/8) fine to coarse GRAVEL; so clay; dense the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period of the period o	YR 7/8) h brown (10		70-72 75-76	91 100		35/12 47/12 100/10 100/9			



				410-538-8202				PU	L	KIO R	aco
Log of	Borir	ıg: C)P-7	,		Geolog	gist: BII	LL HA	ARVE	Y	
Subcontra	ctor: G	EOCIN	М		Name of D	Oriller:FLC	R RIVEF	RA			
Equipmen	t: HOI	LLOW	STEM	M AUGERS (HSA) 8-in OD	•			D	rill T	Type: HSA	Λ
Date Start	ed: 2/	19/200	19	Date Completed: 2/20/2009	Depth of H	Hole (ft):	77.00		Bori	ng/Well:M	MONITORING WELL
Elevation	(ft): 14	1.24		Northing (ft): 871527.8845 Easting	g (ft): 762653	.3993 U	TM NAD	83	Gau	ged Deptl	h to Water (ft): 10.81
Conditio	ons: C	leared	path	along CPR pipeline							
Commen	Comments: Buchanan										
Depth (ft)	USCS Log	Sample Interval		Description of Materials	3	Screening VOC (ppm)	Depth (ft)		overy %)	# Blows per # Inches	Remarks/Sample Name
-012345678910111213141516171819202122232425262728			NS: N	No lithology collected							



Log of Bor	ng: ()P-7		ı	Geologist: BILL HARVEY						
Subcontractor:	GEOCI	M		Name of E	riller:FLC	OR RIVER	RA.				
Equipment: HO	DLLOW	STEM	1 AUGERS (HSA) 8-in OD				D	rill T	ype: HSA	Λ	
Date Started: 2	/19/200	9	Date Completed: 2/20/2009	Depth of H	Depth of Hole (ft): 77.00 Boring/Well:MC			MONITORING WELL			
Elevation (ft):	14.24		Northing (ft): 871527.8845 Easting	(ft): 762653	.3993 U	TM NAD	33	Dept	th to Wate	er (ft): 10.81	
Conditions:	Cleared	l path	along CPR pipeline								
Comments:	Buc	hanan									
Depth (ft) USC			Description of Materials		Screening VOC (ppm)	Depth (ft)	Reco	very %)	# Blows per # Inches	Remarks/Sample Name	
30313233343536373839404142434445464748495051525354555657585859		CL: Y 6/6) C CL: CL: Clow p CL: M (Gley mediu) GC: Cand cc GP: P	Yellowish brown (10 YR 5/8) CLAY and SILT dium plasticity; trace black (10 YR 2/1) silt. Yellowish brown (10 YR 5/8) to brownish yellow CLAY; fairly stiff; little silt; medium plasticity. Dark yellowish brown (10 YR 5/8) CLAY; medium lasticity. Mottled brownish yellow (10 YR 4/6) CLAY; som lasticity. Yellowish brown (10 YR 4/6) and bluis 2 5/1) CLAY; trace black (10 YR 2/1) silt; me um plasticity. Gray (10 YR 6/1) to very pale brown (10 YR 7, barse GRAVEL; dense, very moist. Yele brown (10 YR 6/3) coarse GRAVEL; som barse sand; little clay; loose, wet.	stiffness e silt; stiff; ch gray edium stiff; /4) CLAY		40-42 45-47 50-52	92 100 50		19/12 37/12 13/12 24/12 10/12 19/12	BEGIN CARBONATE ZONE	



FORT BUCHANAN PUERTO RICO

_				110 330 0202	T CERTO RICO							
Log of	Borin	ng: ()P-7			Geolog	gist: BII	LL HA	ARVE	Y		
Subcontra	actor: Gl	EOCI	M		Name of I	e of Driller:FLOR RIVERA						
Equipmen	nt: HOI	LLOW	STEM	A AUGERS (HSA) 8-in OD		Drill Type: HSA						
Date Star	ted: 2/1	19/200	19	Date Completed: 2/20/2009	Depth of H	Hole (ft):	77.00		Borii	ng/Well:M	MONITORING WELL	
Elevation	(ft): 14	1.24		Northing (ft): 871527.8845 Easting	(ft): 762653	.3993 U	TM NAD	83	Dep	th to Wat	er (ft): 10.81	
Conditi	ons: C	leared	l path	along CPR pipeline								
Comme	nts:	Buc	hanan									
Depth (ft)	USCS Log	Sample Interval		Description of Materials		Screening VOC (ppm)	Depth (ft)		overy %)	# Blows per # Inches	Remarks/Sample Name	
59 60 61 62 63				Pale brown (10 YR 6/3) fine to coarse GRAVE e sand; little brown (10 YR 5/3) clay; medium			60-62	67		18/12 32/12		
64 65 66 67			fine to	Pale brown (10 YR 6/3) to very pale brown (10 o coarse GRAVEL; little brown (10 YR 5/3) si dense, wet.			65-67	83		30/12 50/12		
68 69 70 71 72			fine to	Pale brown (10 YR 6/3) and very pale brown (o coarse GRAVEL; little coarse sand, trace cladense, wet.			70-72	92		49/12 47/12		
73 74 75 76				Pale brown (10 YR 6/3) to brown (10 YR 5/3); VEL and CLAY; more clay at depth; loose, we			75-77	67		18/12 20/12		

END OF SAMPLING



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: **SB-3** Name of Driller: EDUARDO SANTIAGO Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA Date Started: 10/20/2006 10/24/2006 Depth of Hole (ft): 90.00 Boring/Well:BOREHOLE Date Completed: UTM NAD83 Eleva6i8n (ft): Northing (m): 867219.90 Easting (m):760997.56 Gauged Depth to Water (ft): NA Conditions: Asphalt between light poles 053/054 Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 0-450 GP: Very dark gray, round GRAVEL and coarse SAND 6/6 CL: Reddish brown (5 YR 4/4) CLAY; little white clay, trace silt. - -2 7/12 -3 10/12 -4 4-8 50 16/12 SB-03-06-03-4-8 CL: Strong brown (7.5 YR 5/6, 5/8) CLAY; little silt, little fine gravel, trace sand; striations of black clay/silt. Stiff. -5 7/12 -6 7/12 -7 18/12 -8 CL: Pinkish white (5 YR 8/2) CLAY with regular intervals of reddish brown (5 YR 4/4) SILT and fine GRAVEL; very stiff. 8-12 79 31/12 -9 19/12 - -10 29/12 - -11 38/12 - -12 12-16 73 39/12 CL: Pinkish white (2.5 YR 8/2) and red (2.5 YR 4/6) CLAY; trace silt. Very stiff, dry. - -13 11/12 - -14 18/12 - -15 23/12 - -16 16-20 100 28/12 CL: Strong brown (7.5 YR 5/6) with black mottles CLAY; trace silt. Very stiff, dry. - -17 9/12 -18 18/12 - **-**19 23/12 - -20 20-24 100 30/12 SB-03-06-03-20-22 CL: Strong brown (7.5 YR 5/1) CLAY; stiff. - -21 4/12 GM: Very pale brown (10 YR 8/2) SILT and fine GRAVEL; trace fine sand, slightly moist. -22 \boxtimes 32/12 . . Ø -23 46/12 SP: Brownish yellow (10 YR 5/6) fine SAND; trace silt, moist.



FORT BUCHANAN PUERTO RICO

(ft) Log (ppm) (ft) (%) #Inches SP: Brownish yellow fine SAND; moist. ML: Pale yellow (2.5 Y 7/3) and brownish yellow SILT; some clay; slightly stiff; trace fine gravel and sand. Slightly moist. 24-26.75 91 55/12 19/12 27/12 19/12 27/12 100/9 GM: Very pale brown (10 YR 8/4) to yellow (10 YR 7/6) medium to coarse GRAVEL; some silt, tapering to stiff CLAY	Remarks/Sample Name
SP: Brownish yellow fine SAND; moist. ML: Pale yellow (2.5 Y 7/3) and brownish yellow SILT; some clay; slightly stiff; trace fine gravel and sand. Slightly moist. -26 -27 -28 GM: Very pale brown (10 YR 8/4) to yellow (10 YR 7/6) medium to coarse GRAVEL; some silt, tapering to stiff CLAY	
ML: Pale yellow (2.5 Y 7/3) and brownish yellow SILT; some clay; slightly stiff; trace fine gravel and sand. Slightly moist. 26 27 28 GM: Very pale brown (10 YR 8/4) to yellow (10 YR 7/6) medium to coarse GRAVEL; some silt, tapering to stiff CLAY	
GM: Very pale brown (10 YR 8/4) to yellow (10 YR 7/6) medium to coarse GRAVEL; some silt, tapering to stiff CLAY	
GM: Very pale brown (10 YR 8/4) to yellow (10 YR 7/6) medium to coarse GRAVEL; some silt, tapering to stiff CLAY	
GM: Very pale brown (10 YR 8/4) to yellow (10 YR 7/6) medium to coarse GRAVEL; some silt, tapering to stiff CLAY	
00 1''1'' 1 CDAVELilt 1ittle 1 Meiet	
63/12	
- 46/12	
31	
GC: Pale brown (10 YR 8/4) CLAY and medium to coarse GRAVEL; trace medium sand. Very moist. 32-33.67 100 45/12	
GM: Pale brown medium to coarse GRAVEL; some medium sand, little clay; very moist.	
35 × × × × × × × × × × × × × × × × × × ×	
36	
CL: Very pale brown (10 YR 8/3) CLAY and fine to medium GRAVEL; little medium sand, very moist. 36-36.67 100	
38	
medium SAND and SILT; little clay, trace fine gravel. Very moist.	
GP: Very pale brown medium angular GRAVEL and medium 40-43.5 100	
SAND; wet. SM: Yellowish brown fine SAND and SILT; moist. ML: Dark bluish gray (Gley 2 4/1) and yellowish brown SILT;	
trace clay. Slightly moist.	
OL: Dark bluish gray SILT; some small gravel and shells. Trace clay, very stiff. Dry.	
GP: Dark bluish gray shells (medium GRAVEL); wet.	
-45	
SM: Greenish gray (Gley 2 6/1, 5/1) fine SAND; little clay, trace silt. Wet.	
SM: Greenish gray fine SAND and SILT; trace clay, trace medium gravel. Very moist.	
-49 100/9 100/9	
50	
GC: Greenish gray medium GRAVEL; some silt and medium sand; little clay. Stiff, moist.	
SM: Greenish gray fine SAND; some silt, some clay, trace fine	
SM: Greenish gray line SAND; some slit, some clay, trace line gravel, moist.	



FORT BUCHANAN PUERTO RICO

Log of	Bom	1 <u>g:</u> 5	OB-3					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
			GP: Greenish gray medium SAND and fine GRAVEL; trace clay and silt. Wet.		54-54-6	100	100/10	
- 56 -			ML: Greenish gray SILT; some fine sand, trace fine to medium gravel. Moist, stiff.		56-57.2	100	100/7	
57 - 58 - 59							100/12	
- 			ML: Light greenish gray (Gley 2, 7/1) SILT; little clay, trace medium sand, fine gravel.		60-60.5	100	100/5	
62 63			OL: Light greenish gray SILT; little white fragments (carbonates). Very stiff.		62-62.5	100	100/6	
- 			ML: Light greenish gray SILT; very stiff. ML: Dark greenish gray SILT; some fine to medium gravel, trace		64-65	100	100/6	
66 -			clay, very stiff. ML: Dark greenish gray SILT; trace fine gravel.		66-66.5	100	100/12	
67 68			GM: Dark greenish gray SILT and medium GRAVEL; trace fine		68-69.25	100	100/6	
- 69 -			sand. ML: Dark greenish gray SILT; little fine sand.				27/6 100/6	
70 - 71			ML: Very dark greenish gray (10 YR 3/1) SILT; some medium gravel at depth. CL: Dark greenish gray CLAY; some silt, trace fine sand.		70-70.8	100	86/6	
72 73			ML: Dark greenish gray SILT; little fine sand, trace gravel.		72-73.67	100	100/4	
- 74 - 75			GM: Dark greenish gray SILT, medium SAND, and medium GRAVEL; moist.		74-74.67	100	46/6 52/6 85/6 100/6 100/8	
76 - 77			SM: Dark greenish gray SILT and fine to medium SAND; moist.		76-77	100	50/6	
- 78 -			SM: Dark greenish gray fine to medium SAND; some silt; very moist.		78-78.75	0.5	100/6	
79 - 80 -			ML: Dark greenish gray (Gley 2 4/1) SILT; trace clay and medium gravel; stiff. Moist.		80-80.9	100	28/6 100/3	
81 82			OL: Dark greenish gray SILT, trace clay, stiff. Evidence of		82-82.67	100	69/6 100/5	



FORT BUCHANAN PUERTO RICO

205 01		\overline{c}						
Depth	USCS Log	nple erval	Description of Materials	Screening	Depth	Recovery	# Blows per	Remarks/Sample Name
(ft)	Log	Sar Inte	T. I. I. I. I. I. I. I. I. I. I. I. I. I.	VOC (ppm)	(ft)	(%)	# Inches	
-83			calcium carbonates; slightly moist.				100/6	
84		-	OL: Dark greenish gray SILT and CLAY; high amount of shell		84-85	100		
			fragments (carbonates), very stiff, mostly dry.				38/6	
		-	OL: Dark greenish gray SILT; some clay, trace fine gravel, trace		86-87.25	100	100/6	
- 87			carbonates. Very stiff, dry.		00 07.23	100	54/6	
88					00 00 5	100	47/6	
- 89			OL: Dark greenish gray SILT; some fine gravel. Dry.		88-88.5	100	100/3	
90							100/5	
-91								



FORT BUCHANAN PUERTO RICO

Geologist: BILL HARVEY Log of Boring: **SB-7** Name of Driller:IVAN Subcontractor: JACA AND SIERRA Equipment: HOLLOW STEM AUGERS (HSA) 8-in OD Drill Type: HSA 10/13/2006 Date Started: 10/10/2006 Depth of Hole (ft): 90.00 Boring/Well:BOREHOLE Date Completed UTM NAD83 Elevation (ft): 9.61 Northing (m):868796.37 Easting (m): 761825.39 Gauged Depth to Water (ft): NA Conditions: Asphalt between light poles 063/064 Comments: Sample Interval Screening # Blows USCS Depth Recovery Remarks/Sample Name Depth Description of Materials VOC per Log (ft) (%) (ft) (ppm) # Inches 0 0.5 - 255 GP: Fine to Coarse subangular GRAVEL; some medium gray (10 - -1 YR 5/1) sand; wet. 7/6 8/6 Ø -2 2-3.5 33 7/6 CL: Yellowish brown (10 YR 5/6) CLAY; some medium to coarse sand; trace gravel; wet. 8/6 -3 10/6 78 3.5-5 12/6 CL: Gray (2.5 Y 5/1) CLAY; fairly stiff; trace fine to medium -4 2/6 2/6 -5 5-6.5 78 2/6 SB-03-06-07-5-6 - **-**6 4/6 8 6.5-8 3/6 CL: Gray to yellowish brown (10 YR 5/4) CLAY; soft. 1/6 1/6 -8 8-9.5 94 1/6 CL: Gray yellowish brown, brownish yellow (10 YR 6/6) CLAY; 0/6 -9 1/6 9.5-11 1/6 CH: Mottled yellowish brown, reddish brown (5 YR 4/4) CLAY; - -10 stiff; some dark yellowish brown clay. 1/6 2/6 - -11 11-12.5 39 CH: Highly mottled (Gley 2 7/1) bluish gray, reddish brown, black CLAY; trace weathered rock (sand). Medium stiffness, 2/6 2/6 fairly plastic. - -12 1/6 12.5-14 89 1/6 CH: Light bluish gray (Gley 2 7/1) CLAY; yellowish brown (10 YR 5/4) clay, trace sand. Medium stiffness, fairly plastic. - **-**13 1/6 2/6 - -14 14-15.5 55 3/6 CL: Light bluish gray CLAY; trace silt. Stiff. 3/6 - -15 3/6 15.5-17 67 3/6 - -16 2/6 SB-03-06-07-16-17 3/6 -17 17-18.5 4/6 CL: Strong brown (7.5 YR 4/6) CLAY; some light bluish gray; grading to brown clay, some silt; trace fine gravel. Stiff. 5/6 -18 7/6 18 5-20 78 10/6 CL: Brown (7.5 YR 4/6) stiff CLAY; some silt; trace fine -19 gravel/coarse sand, very dark grayish brown (10 YR 3/2), more 5/6 sand at depth. 7/6 -20 20-21.5 78 10/6 CL: Brown CLAY, some silt, trace fine gravel grading to yellowish brown (10 YR 5/6) clay, little sand. Very stiff. 3/6 -21 6/6 21.5-23 78 9/6 CL: Brown CLAY; little silt and sand, trace dark brown gravel. -22 4/6



FORT BUCHANAN PUERTO RICO

Cl. Yellowish brown and light bluish gray CLAY; stiff; little silt, trace organics. CL: Light brownish gray (10 YR 6/2) to brown CLAY; trace fine gravel/coarse sand; stiff; some fine sand at bottom of interval. 24.5-26 78 6/6 3/6 4/6 -25 CL: Light prownish CLAY and SAND; wet. CL: Light gray (10 YR 7/2) CLAY; little silt; trace black organics. SW: Yellowish brown fine SAND. Wet. CL: Light gray (10 YR 7/2) CLAY; little silt; trace black organics. SW: Yellowish brown fine sand; little organics. SW: Dark gray fine SAND (10 YR 4/1). SP: Yellowish brown to dark grayish brown (10 YR 4/2) fine SAND; trace clay at depth, trace organics. SW: Light brownish gray (10 YR 6/2) to yellowish brown medium to coarse SAND; trace clay. SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and clay grading to yellowish brown medium SAND. 32-33.5 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 3).5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 3).5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 3).5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 3).5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 3).5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 3).5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 3).5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish gray (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish gray (10 YR 6/3) to very dark gray (
CL: Yellowish brown and light bluish gray CLAY; stiff; little silt, trace organics. 23-24.5 83 6/6 2/6 4/6 4/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6 6/6	ks/Sample Name
- 25 - 26 - 27 - 28 - 28 - 29 - 30 - 30 - 31 - 32 - 32 - 33 - 33 - 34 - 34 - 34 - 34 - 34 - 35 - 36 - 37 - 27 - 28 - 28 - 30 - 31 - 32 - 33 - 33 - 34 - 34 - 34 - 34 - 34 - 34	
- 26 - 27 - 28 - 28 - 29 - 30 - 30 - 31 - 32 - 33 - 34 - 34 - 38 - 38 - 38 - 38 - 38 - 38 - 38 - 38	
SW: Yellowish brown fine SAND. Wet. CL: Light gray CLAY; some fine sand; little organics. SW: Dark gray fine SAND (10 YR 4/1). SP: Yellowish brown to dark grayish brown (10 YR 4/2) fine SAND; trace clay at depth, trace organics. SW: Light brownish gray (10 YR 6/2) to yellowish brown medium to coarse SAND; trace clay. SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and clay grading to yellowish brown medium SAND. SP: Light gray (10 YR 7/2) fine to medium SAND. SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 33.5-35 55 12/6 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 34.5 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish brown (10 YR 6/3) to very dark grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish grayish gray	
29 SP: Yellowish brown to dark grayish brown (10 YR 4/2) fine SAND; trace clay at depth, trace organics. SP: Yellowish brown to dark grayish brown (10 YR 4/2) fine SAND; trace clay at depth, trace organics. SW: Light brownish gray (10 YR 6/2) to yellowish brown medium to coarse SAND; trace clay. SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and clay grading to yellowish brown medium SAND. SP: Light gray (10 YR 7/2) fine to medium SAND. SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR) 30.5-32 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR) 33.5-35 SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR)	
SW: Light brownish gray (10 YR 6/2) to yellowish brown medium to coarse SAND; trace clay. SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and clay grading to yellowish brown medium SAND. SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and clay grading to yellowish brown medium SAND. SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR) 30.5-32 89 13/6 10/6 6/6 6/6 78: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR) 33.5-35 55 12/6	
SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and clay grading to yellowish brown medium SAND. SP: Light gray (10 YR 7/2) fine to medium SAND; trace silt and clay grading to yellowish brown medium SAND. SP: Pale brown (10 YR 6/3) to very dark grayish brown (10 YR) 32-33.5 89 10/6 6/6 6/6 12/6	
33	
3/2) to yellowish brown fine to medium SAND; trace clay and silt. SP: Yellowish brown fine SAND; little clay. 5/6 7/6 9/6	
CL: Yellowish brown to brown CLAY; trace sand. GP: Brownish yellow (10 YR 6/6) medium to coarse GRAVEL.	
GP: Fine to coarse yellowish brown GRAVEL; some coarse sand, trace clay. GP: Fine to coarse yellowish brown GRAVEL; some coarse sand, trace clay. 36.5-38 83 13/6 7/6 3/6 3/6 3/6	
GC: Brownish yellow to yellow (10 YR 6/6, 7/6) medium GRAVEL; little clay; to CLAY and SAND; to medium GRAVEL; some medium sand, trace clay. GC: Brownish yellow to yellow (10 YR 6/6, 7/6) medium GRAVEL; some medium sand, trace clay.	
GC: Brown CLAY and medium SAND/fine GRAVEL; soft. GP: Brownish yellow medium GRAVEL; little clay. GC: Brown CLAY and medium GRAVEL; soft. GP: Brownish yellow medium GRAVEL; little clay.	
GP: Brownish yellow/yellow (10 YR 6/6, 7/6) medium SAND and fine GRAVEL; little brown clay.	
CL: Brown CLAY; little fine sand to brown CLAY, some yellowish brown medium sand, little fine gravel. 42.5-44 78 4/6 3/6 5/6	
SC: Yellow medium to coarse SAND and CLAY; some medium gravel. SC: Yellow medium to coarse SAND and CLAY; some medium 44-45.5 61 9/6 7/6 20/6	
-45 20/6 45.5-47 75 20/6 4/6 9/6	
CL: Light gray (10 YR 7/1) to yellowish brown (10 YR 5/4) 47-48.5 100 22/6 50/6	
CLAY; very stiff; some fine gravel; little fine sand; trace silt. 50/6 50/6 NS: DRILLED THROUGH ROCK 50/5	
49 50	



FORT BUCHANAN PUERTO RICO

Log of	Borin	ıg: S	5B-7					
Depth (ft)	USCS Log	Sample Interval	Description of Materials	Screening VOC (ppm)	Depth (ft)	Recovery (%)	# Blows per # Inches	Remarks/Sample Name
ŀ	. <mark>.</mark> /./		GC: Very pale brown (10 YR 7/4) CLAY and medium GRAVEL;		50-51.5	94	34/6	
51			some medium sand.				50/6	
<u> </u>			CL-SC: Limestone to very pale brown CLAY; some medium		51.5-52	100	50/5	
52	<u> </u>		sand.				50/5	
53	<u></u>				52.54.4	100		
-			GC: Very pale brown (10 YR 7/3) CLAY and fine subangular GRAVEL; some medium to coarse sand; very tight.		53-54.4	100	20/6	
-54							25/6	
- 55			CL: Very pale brown CLAY; some medium to coarse sand, some		54.5-55	100	50/4	
- 33			fine gravel.				50/5	
56					56-57.5	28		
h							30/6	
57							60/6	
58					57.5-58.1	100	32/6	
-							27/6 60/2	
 59			LIMESTONE: Weathered Limestone		59-59.5	50	00/2	
60							100/5	
-60								
61			GC: Coarse GRAVEL; some very pale brown medium sand, trace clay.		60.5-61.5	67	23/6	
+							70/6	
62	/././				62-63.5	44		
63							29/6	
-					63.5-65	55	17/6 13/6	
64			GC: Very pale brown medium SAND to pale brown/brownish yellow medium GRAVEL; some clay.		03.3-03	33	20/6	
65							24/6	
- -65			SP: Very pale brown (10 YR 7/3) fine to medium SAND; trace	1	65-66.5	67	42/6	
66	// /×/./		\silt and clay. GC: Brownish yellow (10 YR 6/6) CLAY and GRAVEL; trace				28/6 25/6	
+	<u> </u>		silt and sand. Very stiff. CL: Very pale brown CLAY; some silt; little fine sand; trace		66.5-68	89	14/6	
-67			medium gravel. Stiff.				4/6	
- 68						_	22/6	
-			NS: No Recovery		68-69.5	0	29/6 10/6	
- -69							11/6	
70	<u> </u>		GP: Very pale brown (10 YR 7/3) medium angular GRAVEL and				50/1	
-70			medium SAND; little clay.		70-70.25	100	70/3	
-71			CD. V-II (10 VD 7/C) and investor and CAND and and investor		71-71.8	90		
-	⊠. ⊠∵⊠		GP: Yellow (10 YR 7/6) medium to coarse SAND and medium angular GRAVEL; trace silt.		71 71.0	70	39/6	
72							50/4	
73			GC: Very pale brown medium SAND and medium GRAVEL; some clay, trace silt.		72.5-72.7	100	50/2	
}	/././		some only, trace sitt.				50/2	
74	· · · · ·		CL-ML: Brownish yellow (10 YR 6/6) CLAY; some silt; trace	<u> </u>	74-74.2	100		
- 75	$\Xi:\Xi$		sand and gravel to very pale brown SILT.				50/2	
-73	: <u></u>				25 5 25 25	100		
76			ML: Light gray (10 YR 7/1) SILT; some clay. Very stiff, very dry.		75.5-75.75	100	100/3	
<u> </u>								
-77			ML: Light greenish gray (Gley 2 7/1) SILT; some clay, very stiff,]	77-77.5	100		
70			very dry.				100/5	



FORT BUCHANAN PUERTO RICO

Log or	Log of Boring. SB-7										
Donth	USCS Log	ıple rval	Description of Materials	Screening	Depth	Recovery	# Blows	Remarks/Sample Name			
Depth	Log	sam nte	Description of Materials	VOC	(ft)	(%)	per	Remarks/Sample Name			
(ft)		5.7		(ppm)	(-1)	(, ,	# Inches				
⊢-10					1		I				
-					78.5-79.9	100					
79			ML: Greenish gray (Gley 2 6/1) to very dark bluish green (Gley 2 3/1) SILT; some clay, very dry, very stiff; some sand at depth.		18.3-19.9	100	20/6				
-			, , , , , , ,				30/6				
80	11171		GP: Light greenish gray (Gley 2 7/1) coarse SAND and medium		80-80.5	100	60/4				
-	⊠ . ∵ ⊠		to coarse GRAVEL; little silt, trace clay. Wet.				60/5				
-			ML: Greenish gray (Gley 2 6/1) SILT; some clay, little fine		81.5-82	100					
82			gravel.				60/5				
83											
03			ML: Greenish gray (Gley 2 5/1) SILT; some clay, little fine		83-83.5	100					
-84			gravel.				100/6				
					04.5.04.0	100					
85			GP: Greenish gray coarse GRAVEL; some coarse sand and clay.		84.5-84.9	100	100/4				
-	🛛 .						100/4				
86			MI C : 1 CHT Fel 1 Fel 1		86-86.4	100					
-			ML: Greenish gray SILT; little clay, little coarse sand, trace medium angular gravel.		00 00.1	100	100/4				
87							100/1				
-			ML: Greenish gray SILT; some medium to coarse sand/fine		87.5-87.9	100					
88			gravel; little clay.				100/4				
1 00											
89		•	ML: Greenish gray SILT; some clay, trace coarse gravel.		89-89.5	100					
90							100/5				
90			END OF SAMPLING								

TEST PIT LOG			TEST PIT NUMBER TP) Name of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the stat	
1. COMPANY NAME	2. SUBCONT	TRACTOR 600	/ ·	*	SHEET SHEETS
3. PROJECT RIADA NW BANDAGY				5. LOCATION / 6. MEA	1 OF (
3. PROJECT BURNAL - NW BOUNDARY 7. NAME OF OPERATOR		4. PROPERTY ADDRE			
		Ca	topillar Loa	dor	
9. SIZES AND TYPES OF SAMPLING EQUIPMENT	:	10. SURFACE ELEVA	FION AND CONDITIONS	6	1.600,0
Backhoe.		Flat	1 brassy ave	(W CAOA	t of DPW
11. DIRECT READING PARAMETERS: VOC- PID, ppm		12. DATE STARTED	9/16/08	13. DATE COMPLETED	9/16/08
14. ESTIMATED FILL THICKNESS		15. DEPTH GROUND\	VATÉR ENCOUNTERED		, , , , , , , , , , , , , , , , , , ,
16. ESTIMATED DEPTH TO NATURAL DEPOSITS		17. RATIONALE FOR	O O O M	sics - ende	of anomalies
18. TOTAL DEPTH OF TEST PIT 4.5 ##		19. OTHER WATER L	EVEL MEASUREMENTS (ŠPEÓÍF)	n 	
20. WELL INSTALLED? IF SO COMPLETE CONSTRUCTION DIAGRAM No		SAMPLE TYPE:	Couab		
21. SAMPLE INTERVAL AND DESIGNATION FOR LAB ANALYSIS SAMPLE II		DESIGNATION FOR	FIELD SCREENING ANALYSIS	LAB ANALYSIS	:
1P-1-4 VIL, SVUL, Post/forb PCB Mo Follo 22. DISPOSITION IF NOT A WELL, BACKFILLED WITH:	0	•	23. GEOLOGIST D	SCREENING ANALYSIS:	VOCs
OF HOLE Backfilled with excavated materials		DIRECT READING	ANALYTICAL	Wey	
USCS DEPTH DESCRIPTION OF MATERIALS (FT) (Describe waste and natural materials)		(d)	SAMPLE DESIGN.	REMARKS	3
(a) (b) (c) (c) (c) (d) brown over	adnic	(ppm)	(e)	(f)	tende mit dem en skind dem de skend den de skend de skind de de skind en skind de skind de skind de skind de s Skind de skind de sk
6"-45 1-2' Sactions	- Dones	0			
= of stool reinforced		ø			
2 par; stool cables		0			
Began filling with	water	6			
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4.5' Bottom of hole		0	TP-1-4		
5 - '					
					-
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TEST DIT LOG				TEST PIT NUMBER TP - Z					
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3. PROJE					oum	5. LOCATION / 6. MEAS	1 OF		
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7. NAME OF OPERATOR			8. MANUFACTURER'S DESIGNATION OF EQUIPMENT						
9. SIZES AND TYPES OF SAMPLING EQUIPMENT			10. SURFACE ELEVATION ÅND CONDITIONS						
					Flat, Grassy Avon in front of DPW				
11. DIREC	11. DIRECT READING PARAMETERS: VOC- PID, ppm				12. DATE STARTED 9/16/08 13. DATE COMPLETED 9/16/08				
14. ESTIN	MATED FILL THIC	KNESS		15. DEPTH GROUNDWATER ENCOUNTERED					
16. ESTIMATED DEPTH TO NATURAL DEPOSITS				17. RATIONALE FOR PIT TERMINATION GOEDIUS SILS - End of anomaly					
18. TOTA	L DEPTH OF TE	ST PIT		19. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)					
B	L INSTALLED?	IF SO COMPLETE CONSTRUCTION DIAGRAM		SAMPLE TYPE:					
No 21. SAMP	PLE INTERVAL A	ND DESIGNATION FOR LAB ANALYSIS	SAMPLE INTERVAL AN	D DESIGNATION FOR	FIELD SCREENING ANALYSIS	LAB ANALYSIS			
		\$-36-504 colorioristicos	C						
22. DISPO		IF NOT A WELL, BACKFILLED WITH: If with excavated materials			23. GEOLOGIST				
	DEPTH	DESCRIPTION OF MATERIALS		DIRECT READING (d)	ANALYTICAL SAMPLE DESIGN.	REMARKS	instruction was an interest and the first order of the contract of the first of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract o		
	(FT) (b)	(Describe waste and natural material (c)	als)	VOC (ppm)	(e)	(f)			
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PROJEC	1:6,191	717		Test Pit No.	TP-2_				

TEST PIT LOG	TEST PIT NUMBER TP-3					
	TRACTOR SHEET SHEET					
3. PROJECT D 1/11/P /		1. PROPERTY ADDRE	0 C1M	5. LOCATION / 6. MEAS	1 OF	
Bullanan - NW Doundan	у	Fort Bulhanan, PR				
7. NAME OF OPERATOR	· E	8. MANUFACTURER'S DESIGNATION OF EQUIPMENT / BAULLOCE				
9. SIZES AND TYPES OF SAMPLING EQUIPMENT	1		TON AND CONDITIONS		/ ^	
		Grassy Area in front of DPW				
11. DIRECT READING PARAMETERS: VOC- PID, ppm	1	12. DATE STARTED 9/16/08				
14. ESTIMATED FILL THICKNESS		15. DEPTH GROUNDWATER ENCOUNTERED				
16. ESTIMATED DEPTH TO NATURAL DEPOSITS	1	17. RATIONALE FOR PIT TERMINATION GOOD MYSICS - Walton of anomalies				
18. TOTAL DEPTH OF TEST PIT 4.5	1	19. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)				
20. WELL INSTALLED? IF SO COMPLETE CONSTRUCTION DIAGRAM		SAMPLE TYPE: Grab				
NO 21. SAMPLE INTERVAL AND DESIGNATION FOR LAB ANALYSIS SAMPLE IN	TERVAL AND	DESIGNATION FOR F	TELD SCREENING ANALYSIS	LAB ANALYSIS	VOC, SUOC, Prot/Marb,	
22. DISPOSITION IF NOT A WELL, BACKFILLED WITH:			23. GEOLOGIST //	SCREENING ANALYSIS:	vocs // ////	
OF HOLE Backfilled with excavated materials			15. Hari	<i>18</i> 4		
USCS DEPTH DESCRIPTION OF MATERIALS LOG (FT) (Describe waste and natural materials)	ann ann an ann an ann an an an an an an	DIRECT READING (d) VOC	ANALYTICAL SAMPLE DESIGN.	REMARKS		
(a) (b) (c)	2 5 10 10 5	(ppm)	(e)	(f)		
- 0-6" Grees to de brown org		0				
1 -6-3' Reinfurced stool b	DAIS;	0				
Scrap wood, miscollar	recus					
2 Motal; Soil wot, 14	<u> </u>	- 1				
3 little fine gravel.	/	6				
3.41 Mars 18-bar, 0.15	0	0	TP-3-4			
PROJECT. 6 A A A A		Total Dia No	~ ~			
PROJECT: 6191717		Test Pit No. T	2.3			

				TEST PIT NUMBER	-4		
TEST PIT LOG 1. COMPANY NAME		TRACTOR A	11		SHEET SHEETS		
	EX	600	Cin		1 OF 1		
3. PROJECT By olva	wan-NW Boundary		4. PROPERTY ADDRE	anan PR	5. LOCATION / 6. MEAS	UREMENTS	
7. NAME OF OPERATOR	1	8. MANUFACTURER'S DESIGNATION OF EQUIPMENT Loader Backboe					
9. SIZES AND TYPES OF	SAMPLING EQUIPMENT		10. SURFACE ELEVATION AND CONDITIONS				
THE REAL PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPE		Coresay ayea - inside longe - East of DPW 12. DATE STARTED Q //6/08 13. DATE COMPLETED Q //6/08					
11. DIRECT READING PAR	AMETERS: VOC- PID, ppm	12. DATE STARTED 9/16/08 13. DATE COMPLETED 9/16/08					
14. ESTIMATED FILL THIC	KNESS		15. DEPTH GROUNDWATER ENCOUNTERED				
16. ESTIMATED DEPTH TO	NATURAL DEPOSITS	17. RATIONALE FOR PIT TERMINATION COEPINSIES, Do Horn of anomaly					
18. TOTAL DEPTH OF TES	FI 4.5 ++		19. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)				
20. WELL INSTALLED?	F SO COMPLETE CONSTRUCTION DIAGRAM	SAMPLE TYPE: Grav					
§	ID DESIGNATION FOR LAB ANALYSIS SAM		D DESIGNATION FOR	FIELD SCREENING ANALYSIS	LAB ANALYSIS	VOC, SUOL, POST/HORD Matrils VOCS	
22. DISPOSITION	IF NOT A WELL, BACKFILLED WITH:		SCREENING ANALYSIS: VOCS 23. GEOLOGIST				
	d with excavated materials		DIRECT READING	ANALYTICAL			
USCS DEPTH LOG (FT) (a) (b)	DESCRIPTION OF MATERIALS (Describe waste and natural materials) (c)		(d) VOC (ppm)	SAMPLE DESIGN. (e)	REMARKS (f)		
	0.6" Grass to de bio	un organi		rensennamen menennamen menennamen menennamen der betrehe menen in menen menen menen menen menen menen menen me	free season conservation and a season and a		
	0.6" Grass to debru 6"-2" Lit brown oran 50 ly day, litt	la fine	0				
	gravol,		6				
2	2 - 11 m : 11/4-6-20-1						
	2-4' Many oil- filter Caristors, Possibly	speed vehicle-	0				
	foliated (Freen?): cloy w/ some fine	silly	0	TP-4-4			
i.f.	Cong wi some into	moist;		1 * 1			
-							
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PROJECT: 6191	717		Test Pit No.	2-4			